THE

SOUTHERN AGRICULTURIST.

APRIL, 1839.

PART I.

EDITORIAL AND ORIGINAL.

Corn cultivated for the Stalk, and not for the Ear or Blade.

Savannah, March 14th, 1839.

Mr. Editor,—The high price of labor is producing an important change in our system of agriculture. From our cotton plantations, the old treadle gin is disappearing, and an improved roller horse gin is supplying its place. Upon rice plantations, the threshing machine, impelled by steam or animal power, is gradually expelling that remnant of barbarism, the flail stock. Although the high price of labor is matter of regret, its tendency is to make us better agriculturists. It calls for a greater sagacity, as well as a more rigid economy in the management of business. It makes us more saving of labor, and more careful of the health of the laborer. It leads to the adoption of labor-saving machines, and to the gradual substitution of animal power for human power.

The maintenance of the animals introduced by this change of system, is a practical question of great importance, and upon this point I propose to submit a few observations.

It is believed that the average crop of corn and oats in Georgia and South-Carolina, does not exceed twelve bushels per acre. Upon this, and the fodder gathered from the corn, we place our dependence for the sustenance of the animals employed in our agriculture. To produce a sufficiency, we are compelled to enlarge our plantings of these exhausting crops, and we devote to

these purposes land already impoverished and requiring rest. Among the ultimate consequences of such a system, are abandoned plantations, and emigration. To mitigate this evil, and to assist in the maintenance of our animals, I propose a Fodder patch, that is, the cultivation of Indian corn, expressly for the stalk, and not for the ear or blade. I propose this stalk fodder, not as a substitute for grain, but as a valuable auxiliary—rendering, in fact, the grain given more efficacious, and enabling the animals to do with less. For the last six years, I have devoted to this purpose a small lot of land, and I estimate the product so highly, that nothing would induce me to abandon the culture. At the usual corn planting season, this lot is trenched four feet apart, with a bull-tongue plough, and in these trenches we sow the common Indian corn, at the rate of two bushels and upwards to the acre. During its growth, this corn receives two or three ploughings, and this is all the culture it gets—it is neither hand picked nor hoed. At every ploughing, the earth is thrown fearlessly towards the corn, which would be buried and destroyed, were it not that the mass of plants growing in the trenches, enables it to resist the pressure of the earth thrown against it. By this treatment, every particle of grass growing at the root of the corn, is completely destroyed.

When the fodder corn begins to tassel, we begin to use it, and not before. The reason is manifest. It is a well known law of vegetable life, that when plants are in bloom, then their mucilaginous, saccharine, and nutritive properties, are most fully developed. This is proven by the fact, that if herbs be gathered for distillation, or grass be mown for hay, before the appearance of the blossom in both instances, they yield no valuable products. To this law Indian corn constitutes no exception, and hence our reason for waiting until it tassels before we commence using it. If gathered before that time, my persuasion is, that the stalk is of little or no value.

We wait then until it tassels, before we begin to use it. The ploughman, with a short scythe or sickle, cuts it up at the root, takes it by large arms-full to the cutting box, and when cut it is mixed with chopped oats, and given to our working animals. I feel satisfied, when a sufficiency of this chopped corn stalk is mixed with their oats, that plough horses and mules will do with one third, per-

haps one half less grain. Besides, while using it, no other forage is required, and this is no trifling convenience. When planted at the usual season, the fodder corn begins to tassel about the 20th June. It comes in at a time when there is frequently a pressing necessity for fodder—when the ploughs are in full action—when animals require food of the most nutritive kind, and when frequently the blade crop of the preceding year is totally exhausted.

We continue to use this fodder corn as long as it lasts, and it has this great recommendation, that the longer it stands until actually killed by frost, the more palatable it appears to become to animals. After the tassel has dried up, when every blade hangs down, and has become colorless, when in fact from external appearance, we would pronounce the plant actually dead, the stalk will be found to be still perfectly green. I have satisfied myself of this fact, by repeated observation. I have gone into this fodder patch for several years in succession, as late as the middle of October, and have invariably found the stalk of the corn green and more rich in its nutritive properties, than at any preceding period. The juices of the plant, after being elaborated in the leaves, appear to be concentrated in the stalk, and it contains at that time so much saccharine matter, that it approximates its taste to the upper joints of the sugar cane itself. That this protracted vitality of the stalk is owing to the fact, that the plant is never deprived of the blade, I have not a shadow of doubt. At the very time in October when I found the stalk of this fodder-corn green, crisp, and juicy, the stalks of the crop-corn from which the fodder had been gathered at the usual season, was dried up and dead. I infer from these facts, that the early gathering of fodder is a pernicious practice—because, by impairing the vitality of the stalk of the corn plant, when in the very act of perfecting the ear, it necessarily interferes with the complete maturity of the grain. I advance this as no novelty, but only to reiterate an important agricultural truth. It has been demonstrated by repeated experiments among the farmers of the Middle and Northern States, that "topping corn" seriously diminishes the amount of the crop. By parity of reason, the abstraction of the fodder before the maturity of the grain, must be attended with consequences proportionably injurious. It

is the general impression of planters, that the ear of the Indian corn is completely matured at the time of gathering the fodder, and hence that no injury results from taking away the blade. I greatly doubt the correctness of this impression; Indian corn being an annual, the whole energies of the plant are directed to the perfection of the ear, all the other parts of the plant are but the ways and means provided for the accomplishment of this end. Now, it seems to me reasonable and probable, that as long as the leaves and stalks remain green, they continue to impart something of value to the ear. The strong sympathies which are known to subsist between the ear, the stalk and the blade, go to confirm this opinion. If the green ear is destroyed by a squirrel, the leaves of that plant soon become discolored, and it prematurely dies. If the blades be stripped when the corn is in mutton, the stalk perishes, and the ear is shrivelled and light. You can mutilate no one part of the plant, without inflicting serious injury on the other two.

Could we abandon the gathering of fodder, we should in many respects be greatly the gainers. The plant would escape mutilation, and consequently the ear would be completely perfected; the grain would be plump and heavy; would measure further, and fatten more. Besides, there would be the gain of time. There is no work done on plantations, which makes so poor a return for the labor expended. I have heard practical men say, that a smart man will, with a scythe, cut a greater weight of hay in a day, than any five hands can gather in blades. As far as my experience goes, this falls short rather than exceeds the truth.

But the question is asked, what shall we use in lieu of blades. My answer is, we have more land capable of yielding hay than we imagine. Upon every plantation, there are low grounds, shallow ponds, and patches of swamp, devoted commonly to rushes, brambles and gum sprouts, which, if drained and ploughed, yield handsome crops of hay. Our ordinary high lands produce tolerable crops of grass, if cowpenned and ploughed. Another resource is that of cutting the grass which springs up on our stubble lands, from which crops of small grain have been taken. Another source of supply would be this fodder-corn I am recommending. Two or three acres of good land appropriated to this purpose, would furnish a

large supply of forage. The corn might be cut and stacked in the fields, as is the practice of the farmers of the Middle and Northern States, and this might be done at any time in September or October, as would best suit the convenience of the planter.

Fodder diligently gathered from these sources, would at least enable us to dispense with a part of the blade crop. The stripping might be postponed until the blades below the ear were dead. By that time, the grain would be so far matured, that it woutd suffer far less than happens when every blade is green at the time of gathering.

I have never yet ascertained the weight of an acre of fodder corn, but have no hesitation in saying that it is very great. One acre of good land will furnish an abundance of forage for four horses for three months. Mules appear to be especially fond of it, and cows running upon ordinary pastures, will, if fed with these chopped corn stalks, double their butter in a few days.

It is well known that the average crop of corn of the Middle and Northern States, exceeds our own, and that this arises not so much from superiority of soil, as from the number of stalks they are able to crowd upon an acre. With them, the corn plant does not attain a height of more than seven or eight feet, while with us it is not uncommon to see stalks fourteen feet in height. As a consequence, they are able to leave four stalks in a hill, when we leave only one, and hence their crops are larger than ours. In this climate, then, the tendency of Indian corn is to grow to stalk, rather than to ear, and by adopting the plan I propose for cultivating it expressly for the stalk, and not for the ear or blade, you take advantage of that propensity, and correct what may be termed an incumbrance to valuable practical uses. If this immense growth of stalk militates against the production of grain, it is no small mitigation of the evil, if we can employ the stalk measurably as a substitute for grain.

Cultivation of the Sweet Potato.

St. John's, Berkley, March, 1839.

Mr. Editor,—The following letter written by Mr. Solomon Clark, of St. Stephen's, in reply to one written him by a friend, appears to me so full of valuable information, that I request the favor of its publication in your journal. Mr. C. is well known as a most successful and thriving agriculturist, and is authority on the subject of potatoes, for they are usually a drug with him. He does not state the character of his soil—I happen to know that it is a good specimen of pine-land—a character of soil held at present in little repute, but which I would not be surprised to see soon very highly appreciated. Mr. C. further inculcates the planting of potatoes in March. I have so often heard successful planters dogmatize on the relative advantages of early and late planting, that I have arrived the conclusion, that within reasonable limits, both parties are right.

Trusting that the hints contained in this paper may yet be valuable even for the present year, I submit it to you, and am, Sir, yours, &c.

A SUBSCRIBER.

Buck Hall, St. Stephen's, February, 1839.

Dear Sir,—* * * * * * * * As to my method of raising potatoes, I would prefer telling you in conversation, to communicating by letter, as there are many little points which may escape me in writing, to which you would naturally call my attention in conversation.

In the first place, plant your potatoes by the middle of March, in last year's cotton field, if practicable; put under the list from twenty to twenty-five bushels of cotton seed to the acre. Make your bed small, and enlarge it whilst planting and hoeing. Your potatoes should not be planted more than from three to four inches apart. The long potatoes should be cut, the smaller may be planted whole.

After the potatoes are set, cover them by drawing up the earth on *one* side of the bed; clap the earth well with

the hoe, then draw up the earth on the other side, and leave it loose, giving to the bed a sharp top.

When you see the potatoes coming up, send a careful hand to remove all the earth from the top of the bed, as far down as the part which was clapped. If a few plants are cut in this operation, no harm will be done—if this work be well done, you will be spared the trouble of picking them.

Before your field becomes grassy, one hand can draw down with the hoe a task and a half, (three quarters of an acre.)* Let the hoe go as close to the plant as possible. Let the field remain thus drawn down, from seven to ten days, and then, with a shovel plough, run one (or if the beds be far apart, more than one) deep furrow. Follow the plough with the hoe while the earth is yet loose, and draw up a large bed. During this work, pay no attention to the vines, as it is of no consequence whether they are covered or not. If in drawing down the earth the beds have been well cut, there will be no necessity to pick away weeds or grass. Your beds ought ever to be well covered with vines. Now the work must depend upon circumstances—your crop must be kept clean, but the earth on the beds ought not to be stirred.

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SOLOMON CLARK.

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* Would it not be as well Mr. Editor, whenever a quantity of land is to be expressed in a paper intended for publication, to use the term "*acre*" and its constituent parts, rather than the vague and indeterminate "*tasks?*" The farmer is known and understood wherever your journal circulates—the latter is entirely local in its application, and its value varies with the locality. In the southern and south-western parts of the State the acre is divided into four "*tasks*" of 105 feet square each, two of these, or half an acre being the day's work of a full hand. In the cotton region of this section, the "*task*" is a portion of land 150 feet square, or as nearly as possible half an acre. Here we have the same word used to express a half acre, and a quarter of an acre. How easy is it to express the intended quality in terms which call for no explanation, and admits of no misconception.

Proceedings of the Monticello Planters' Society of Fairfield District, South-Carolina.

The stated semi-annual meeting of the Monticello Planter's Society, being the 6th of March, and the members having convened accordingly, some irregularity ensued because of the accidental absence of the officer who had the records in his possession; but the President having called the meeting to order, appointed James B. Davis to act as Secretary.

After the admission of new members, the committees who had not yet submitted Reports, were called on to present them, if prepared, for the consideration and action of this meeting.

The Committee on Oats not being present, and a report having been prepared on this branch of husbandry, by a member who had mistaken the committee upon which he had been officially appointed, it was decided to be informal, and that the report could not be received unless with the previous consultation or consent of said committee; whereupon it was withdrawn.

The Committee on Grapes reported, and on motion, the same order was taken which had been exercised with the preceding and similar documents of the Society.

The Report of the Committee on Cattle, it was stated, was not quite complete, but the Chairman pro. tem. observed, that whilst the cause was to be found in the recent indisposition of his family, he assured the members it would be forthcoming at their next session.

Dr. James B. Davis now moved the following resolution, which was unanimously adopted:

Resolved, That the President, Chancellor Harper, Gen. Means, and Wm. J. Alston, Esq., be constituted a committee on the part of this Society, to present again in December, the Memorial presented at the last session of the Legislature; and to furnish very elaborately, not only the mode by which the object is to be accomplished, but also a full detail of all the advantages that might accrue therefrom to the community at large.

On motion of W. J. Alston, Esq., *Resolved*, That members contending for the awards of this Society, upon showing the property as exhibited to be theirs, have com-

plied with every requisition, which shall be adjudged necessary.

The resolution was carried.

Col. Jonathan Davis submitted the following resolutions, *seriatim*, which were adopted, and referred to the appropriate committees:

Resolved, That the Committee on Corn, in addition to the experiments recommended last year of deep ploughing, be requested to test the difference effectually between planting low in the earth, and on a level or near the level of the earth; that is, in a deep and a shallow furrow covered the same depth with earth. Referred to the Committee on Corn.

Resolved, That the Committee on Cotton be requested to prove by full and fair experiment the best distance to plant cotton in the drill; in other words, the difference in the produce of an acre by planting and leaving at the various distances in the drill of 8, 10, 12, 18, and 24 inches apart; and that not less than five rows an acre long, of each distance, be planted side by side so as to afford sufficient proof under the same advantages of soil and culture—the rows being at the same distance, not less than three and a half feet. Referred to the Committee on Cotton.

Resolved, That the Committee on Manures be requested to make all the varieties of experiments upon manures their wisdom and opportunities may enable them the present year, and to report at our next meeting the results—more especially as to the manures of stimulus: amongst other experiments on this class of manures, that this committee be requested to try the following:

1. *Of Salt on Cotton.*—That salt be dissolved in liquid manure run from the stable yard, in greater and less quantities; and that stable manure be also sprinkled with this liquid and drilled in with the cotton seed: and a like experiment to be made with *corn* planted in the hill, and not less than five rows, an acre long, to be thus planted.

2. *Of Saltpetre.*—That the same experiments as above be made with nitre.

3. *Of Lime.*—That cotton seed be saturated in stable liquor, that the lime be mixed with rich yard earth, and the cotton seed rolled in this mixture; and that lime be lightly sprinkled and stirred with stable manure, and this

manure drilled in with the cotton: also, the same use to be made of lime in the planting of *corn.*

4. *Compound of Salt, Nitre and Lime.*—That this compost be tried, using them all in the manner above proportionately compounded, both in cotton and corn culture. That a report be made of the above experiments of the quantity and quality each five rows produce, so as to estimate the quantity to the acre by ascertaining the number of rows in the acre, and the production of five rows thus prepared, in contrast with five rows manured with the same quantities of liquid and stable manure, without the manures of stimulus (of salt, nitre, or lime.)

As an amendment, the following was proposed: That the three last experiments be made, using plaster of paris instead of lime. The resolutions, with the amendment, were adopted by the Society, and so referred.

There being no other business undisposed of, the Society, on motion, adjourned.

B. F. DAVIS, *Rec. Sec'y.*

Malaria,—Its effects in producing Country and other Fevers.

Mr. Editor,—Believing that the following remarks on the laws which govern the production and propagation of malaria, may in some measure be useful and interesting to many of your readers, from the fact of the prevalence and fatality of what is termed Country Fever, amongst our inhabitants, and especially the agricultural portion, I have been induced to submit them to you for your journal, if you think them worthy of a place in its pages. I have condensed the subject very much, from the circumstance of the limit of a journal like this, and have only detailed some very striking facts which cannot fail to be interesting.

The first law we shall notice in regard to the propagation of malaria, is, that it obeys the motion of the atmosphere, being conveyed by winds to some distance from the locality where it is generated, with equal if not greater fatality. It has often been attempted to ascertain the precise or probable distance that malaria can be conveyed by winds, to produce fever, but all such attempts have

failed to establish any exact or certain distance. Notwithstanding this, cases are related by writers where it has been transmitted to the distance of even three miles. The convent of Camaldoli, in Italy, is an illustration of this fact. It is situated on a very high hill, three miles from the Lake Agnano, which is the nearest source of malaria, producing remittent and intermittent fevers amongst the inmates. We are informed by a writer on the climate of Italy, that out of seventy-six unhealthy towns and villages, thirty-five are situated on hills some distance from locality, likely to produce malaria. The marshes about Ereth in Kent, says M'Collock, are less injurious to the inhabitants of the lower grounds near them, than might be expected, while their effect on the houses which are situated high on the hills above, is such, as at different times to have been severely felt by the inhabitants. This circumstance he attributes to a current of air so directed, as to escape the low grounds, while it ascends and affects the eminences.

The distance at which malaria may produce its effect, constitutes a subject worthy of inquiry; for individuals living in the country often think the location of their residences safe, because they have no standing water near them, when there is a swamp or a low piece of ground some distance off. When fever prevails, they seldom or never think or believe, that the exciting cause may be only a mile or two miles off; but they imagine the sickness to be of a peculiar nature, not in any way attributable to the immediate locality. These hints may prove useful to many of my readers in the choice of their summer residences, which ought to be a few miles from any locality likely to generate malaria.

Writers on the diseases of warm climates, have stated many facts in relation to this part of our subject, which are highly interesting and important. Some of these authors do not think, that this poison can produce disease at the distance of more than a quarter of a mile. Dr. Lind, in his observations on the preservation of the health of seamen, says, " That when Commodore Long's squadron, in the months of July and August, in 1744, lay off the mouth of the Tiber, it was observed that one or two of the ships which lay closest to the shore, began to be affected by the pernicious vapor from the land; whilst some lying further out at sea, at but a very small distance

from the former, had not a man sick. At the same time, the Austrian army, under the command of Prince Lobcowitz, suffered so great sickness through the proximity of their situation to the marshy country, that they were obliged to decamp." There is no doubt that the distance to which malaria may be conveyed, depends much upon the wind, which, when strong, may waft this poison many miles. Dr. Bancroft, in his work on Yellow Fever, expresses himself strongly on this subject. "The distance, says he, to which the exhalations of marshy grounds may be conveyed from their source, and retain the poison of causing the yellow or other marsh fever, will partly depend on the force of the wind, and partly on the extent of the surface from which they arise—and on their being more or less copiously extricated from that surface. If the wind be very moderate, and blow steadily from the same point, and if the miasmata be abundantly emitted from a very great extent of surface, it seems probable that so large a mass of them as would thus be formed, might be conveyed a quarter and perhaps a half mile, before it became so diluted with atmospheric air, or so dissipated by the wind, as to lose its morbific power." This is only supposition on the part of this author; but the case cited before of the convent of Camaldoli, proves that it has been known to produce its deadly effect at the distance of three miles. A very striking instance of the action of the winds in conveying malaria, is given by Lancisi. Thirty persons of distinction in Rome having been on a party of pleasure towards the mouth of the Tiber, the wind shifted suddenly to the southward, blowing over some infectious marches, and in a very short time twenty-nine of the party were attacked by fever. . . . .

Another important law in relation to malaria is, that it is dispersed by the rays of the sun, for which reason the nights and the early morning are the most dangerous times to be exposed to miasmatic districts. The fog or vapor, when acted upon by the heat of the sun, is rarified, and becoming lighter than the surrounding atmosphere, ascends to some considerable height: By this process, the sickness on high mountains has been accounted for. Individuals exposed at night to malaria, have imitated this law of nature, by building up large fires, the heat of which has the same chemical effect as that of the

sun. The use of fires in dissipating malaria, and rendering it innoxious, has been long known and acted upon. We have the authority of Lancisi, Pliny and Hypocrates, to prove its beneficial effects. Napoleon, whose mind was ever observant and active, tested its efficacy in one of his campaigns in Italy, and succeeded in preserving the health of his soldiers. A very strong case in point is cited on good authority. An individual, engaged in cutting wood in Africa, found that his work could not be carried on during the summer months, in consequence of the fever prevailing among the laborers. By way of expedient, he constructed a large number of earthen furnaces in the immediate vicinity, where the laborers were at work, and kept them constantly supplied with fuel, which burned all day; the result was, that before he made this arrangement, he had from 40 to 50 men sick a day, when in a short period they were reduced from 12 to 1. The night is dangerous too, on account of its being the time when we seek relief and rest from the fatigues of the day in sleep; the consequent relaxation produced by this state of the human system, renders man more liable to disease when asleep, than awake. During the prevalence of the fatal scourge, the cholera, which has devastated so large a portion of the inhabitants of the earth, it was noticed by every one, that the majority of cases were attacked at night.

Malaria is also intercepted by trees with thick foliage, attributed to mere mechanical obstruction, the vapor settling in the foliage. The late Dr. Faust, of Columbia, in a treatise on malaria, has given a chemical explanation of this fact. He remarks, that "it is probable that the carburetted hydrogen accompanying the water, is absorbed by the trees, and being decomposed, contributes to their growth, in the same manner as carbonic acid." I am inclined to think, that the utility of trees in preventing the propagation of malaria, is to be attributable as much, if not more, to the mechanical obstruction which they afford, as the chymical change which takes place during the process of vegetation, for high fences or walks have afforded the same protection. In Rome, during the sickly season, the most prudent inhabitants, conscious of this fact, retire into their houses at sunset, close the windows and doors, and will not allow them to be opened until the sun has been up long enough to dissipate the

fog. In this way they have kept from contracting fever, when their near neighbors, not making use of the same salutary precaution, have sickened and died. Dr. James Johnson, who has bestowed much attention on this subject, in his work on Tropical Climates, remarks: "During my residence near the marshes of Languedoc, I lived near a very fine building, formerly the convent Franquevaux, erected on the very border of the marshes. The monks in the house were perfectly healthy, though few of the inhabitants of the environs escaped disease in summer or autumn. Tradition nevertheless relates, that they were accustomed in hot weather, to sleep on a terrace contiguous to the convent, a sure method of exposing themselves to disorders; but they were sheltered by a tent of double or triple canvass, and this simple precaution necessary against the musquitoes, proved, unknown to them, a still more certain protection against miasmiata." Now this goes clearly to prove, that the safety of these individuals was entirely attributable to the mechanical obstruction afforded by the canvass. It is often noticed by persons with astonishment, that one side of a street is the seat of sickness, and not the other: this can be accounted for on the same principle, one row of houses being more exposed than the other. This has even been noticed as regards large buildings, one part being perfectly healthy, and the other not so. It is said, that in the extensive hospital of St. Spirito, in Rome, the wards to the south and south-east are sickly, and the others quite healthy. We might mention many similar examples, which although highly interesting, we are compelled to omit, as we must proceed to examine some of the most evident causes of the increased unhealthiness of the low country of this State.

The change in the cultivation of rice from inland to river-swamps, I have no doubt, is a very fruitful cause. The deletorious effect of this change, was to leave an immense extent of rice-fields abounding with stubble, from which is said by the inhabitants of India, the poison is chiefly produced, and not being cultivated, there is always a sufficient quantity of water to do all the mischief. Extensive rice fields have been allowed to lay waste, by falling into the hands of individuals, who had not the means of cultivating them. It is through this agency that we can account for the sickness which now prevails

in situations where the inhabitants spent their summers formerly, when every place was under high cultivation.

Clearing land is another fruitful cause. The surface of the earth with the vegetable matter, becomes exposed to the action of the sun, and malaria is readily formed; but when the surface of the land is thoroughly shaded, the agency of the rays of the sun is in a great measure cut off. This circumstance is proved by the fact, that summer residences in pine-land, in most cases, remain healthy, until the officious hand of man destroys the trees, and allows the heat of the sun to act on the land. It is said that it was for this reason that the Romans consecrated their groves and woods. Connected with this, is the turning of new land for cultivation in summer, which I think has been almost entirely overlooked. The village of Pineville, which afforded so pleasant and convenient a residence for many families, and now almost entirely deserted, may be cited as an example of the injurious practice of clearing and cultivating land in the vicinity of a summer residence. The following instance is one of much importance, and deserves our attention.

During the summer of 1834, when the space in front of the Citadel in this city, was in a state of preparation by ploughing the land, in order to level it for a Parade Ground, yellow fever, of a very malignant nature, attacked the soldiers, which I have no doubt was caused, if not aggravated, by the exposure of the land—there were very few cases in the city.

How often do we hear of digging ditches and drains in the summer, causing sickness; which fact should shew us the propriety of doing such work in the winter. The rich lands of the West, when first cleared and turned for cultivation, if done in summer, will cause the deaths of many, which I think has already been the case. Volney, Rush, M'Cullock, and many other eminent writers, have noticed the fact, that the breaking up for the first time of meadow land, for cultivation, is always attended with fatal consequences. A writer on the diseases of India, describes the disease produced by this process of cultivation, to be as fatal as the plague. Laborers residing but one night on the spot newly turned in summer, invariably die.

These causes, I think, serve in a great measure to account for the greater production and propagation of mala-

ria in our own country now, than many years ago; for localities once the seat of sickness and death, have been rendered perfectly healthy, by removing the causes of the production of malaria, of which we have spoken. Many situations in Italy and India, may be cited as exemplifying this fact, but let us take an example nearer home. During my residence in Philadelphia, a few years ago, different parts of the suburbs of the city were pointed out to me, as being but a few years previous, as unhealthy as any part of our low country, which now is as healthy as any part of that beautiful city. This beneficial change has been effected by draining, filling up, and building, to the entire extinction of bilious fever. Dr. Caldwell, in his treatise on malaria, remarks, "that the large body of land adjoining Philadelphia, on the south, called the Neck, half a century ago, was but little better than a great morass. Nor did the Pontine marshes surpass it much in the extent and violence of its autumnal diseases. But time and labor have converted it into meadows, fields and gardens, rich in the products of several kinds of cultivation. Nor does it flourish more in vegetation than in health. Its population is now dense. Such is the happy result of draining, banking and planting." I am fully persuaded that our own city may be extended, by pursuing the same process on the neck, which in many places is so liable to fever, owing almost entirely to their being so perfectly neglected, especially as regards draining.

Hoping that these remarks may be interesting to many of your readers,

I remain yours, truly,
W. G. RAMSAY, M. D.

Preparation of Silk.

Of all the benefits conferred upon the human race, by the monastic recluses of the middle ages, none can for extent of usefulness, compare with that which resulted from the mission of two monks to the East, and which was the first origin of the Silk culture in Europe. The few eggs brought away by stealth, and concealed in the hollow of a cane, were the sources whence so abundant

a tide of profit and of occupation poured in upon the Western world. Silk has since that time grown to be an article of every day and domestic use; from the richest ornament of the highborn and beautiful, down to the common riband that decks the straw hat of the peasant.

It employs thousands of hands that had otherwise been idle, it freights commerce with its richest cargo, and adds another vast field for the exertion of human industry and skill. A silk dress was once too costly for the empress of the world, worth more than its weight in gold, and now there is scarce a damsel who would not imagine herself ill furnished for the compaign, without an equipment of this beautiful material. But numerous and diversified as are its applications and uses, the field is but just opened, scarcely the first furrow has been drawn, which shall hereafter yield so abundant an harvest.

Most of us can remember, that with the increase in the cultivation of cotton, there ran constantly a doleful wail that the produce would exceed the consumption—how has this been verified? To this fact we would triumphantly refer those who predict the same evil in regard to silk. More than 26,000,000 of dollars are annually paid out of this country for fabrics of silk, when we should at least furnish ourselves, if not supply a large amount for exportation.

No country is more admirably adapted for the rearing of worms, and the manufacture of silk, than the United States, and above all the vast region south of Virginia. Our light and sandy soils, which in many places are good for nothing else, are the very grounds suited by nature to the Morus Multicaulis, while there are upon every plantation many whose sinews are unable to endure the constant routine of daily toil, and whose time is for the most part utterly profitless to the owner. Were the silk culture generally introduced, the feeble and superannuated, as well as the child not yet matured for field labor, would find a light and easy task.

To give our readers some idea of the degree of profit which results from the silk business, we would refer them to the following statement of the expenses and profits of one year's crop at Economy, Pa.

The account is taken from the report to the Silk Meeting, in the March No. of the Journal of the American Silk Society.

"Cocoons produced in 1838, 1440 lbs. State premium, -	$288 00
'Raw silk from above, 151 lbs. do. - -	75 50
'This 151 lbs. of raw silk would produce 3,031 yards dress silk, worth one dollar per yard	3,031 00
'Necessary in feeding worms, say sixteen children or youth, seven to fifteen years of age, eight weeks, at two dollors per week,	256 00
'In reeling, twelve girls, two weeks, at two dollars, - - - - - - -	48 00
'Twisting and reeling, six girls, two weeks, at two dollars, - - - - - -	24 00
'Colouring and dying, at fifty cents per lb.	75 50
'Quilling and preparing for the room, two children, two hundred and fifty days, at two dollars per week, - - - - -	166 00
'Two weavers two hundred and fifty days, at one dollar and fifty cts. each per day, -	750 00
'Interest on cocoonery, at ten per cent. -	60 00
Do. machinery, ten " " - -	50 00
Do. weaving house, &c., ten per cent.	50 00
'Aggregate outlay, including interest, &c. -	$1,479 50

RECAPITULATION.

'Value of manufactured article, - -	$3,031 00
'State premium on cocoons, at twenty cts per lb.	288 00
Do. do. reeling, at fifty cents do.	75 50
Aggregate products, -	$3,394 50
Deduct probable outlay,	1,479 50
'Clear product on feeding and manufacturing,	$1,915 00

"To produce 1440 lbs. of cocoons, requires about '432,000 eggs, or about 11 oz."

"The above is a large allowance, both in number of 'hands and time. For the three first weeks, not more 'than four would be necessary; the fourth and fifth weeks, 'eight active girls would have been sufficient, and all the 'worms ought to have been brought to the cocoon in five 'weeks; but allowing six weeks, which is liberal, the 'estimate of expense ought to have been, for four girls 'three weeks, at two dollars, twenty-four dollars; for eight

'girls three weeks, at two dollars, forty-eight dollars; 'total, seventy-two dollars.—G. B. SMITH."

Many of the items in the above account are of no application to the production of the raw material, which would be the principal object of attention to us. The manufacture, to be eminently successful, should be carried on upon a large scale. But it is highly gratifying to see that the industry of the projectors of this manufacture, is so well rewarded as it appears to be. Their fabrics meet with a rapid sale, and command a high price; some specimens from Economy are highly and deservedly complimented in the following notice:

" The samples of silk have been received by the sub-'scriber, and may be examined by any person at the 'office of the Journal of the American Silk Society. They 'consist of eight kinds, viz., purple silk velvet; two co-'lored sprig gro de nap vesting, green and red; lilac 'sprigged ladies dress silk; deep or royal purple plain 'dress silk; light purple and yellow diamond figured vest-'ing; black satin sprig and flower five colored vesting; 'plain black satin; purple satin three colored sprig vest-'ing. Each of these samples is pronounced by good judges 'first rate goods of their kinds, and far superior in web 'and texture to goods usually imported. The committee 'will please accept my thanks for these most convincing 'evidences of the progress of the good cause in Beaver 'county. They prove conclusively, that silk can be made 'in this country, and the above report proves the profita-'bleness of the business. What more can be wanting to 'ensure its extensive prosecution.—G. B. SMITH."

The business of rearing the worms is rapidly increasing, and would increase still more rapidly, but for the scarcity of the tree in those regions which are the principal centres of the enterprise. The Northern and Middle States, spite of the disadvantages of their climate, (which limits them to one, or at most two, successions of worms, while ours would permit four) are leading the way in this enterprise. For a few instances we give the following:

"Mr. Jerome, at Princeton, N. J., 1,000,000; Jenks & 'Co., Frederick, Md., 100,000, and will make next year '500 pounds of silk; a gentleman in Zanesville, Ohio, '*two hundred bushels of cocoons*,"—and so of many other

instances. And not only in the mere raising of the worm, and production of the raw silk, but in the manufacture we are advancing.

In this great branch of national enterprise, does it become the Southern States to lie idle, to suffer all their advantages of situation, domestic discipline, and climate, to become powerless and useless. Shall the prize glitter before us, and we be too idle or too timid to reach forth a hand and secure it? Why the very corners and turning rows of our plantations would furnish trees enough to supply the vast and growing demand; the "old fields," long thrown out of cultivation as hopeless, would be worth more, if planted with the multicaulis, than the best rice land in the State; and even after the demand for the young trees should be checked and diminished, which will not be for many a year, the culture of the silk itself will provide a most profitable employment for our hands, at the very time when, in the regular course of planting, there is little or nothing for them to do. We are accused, and perhaps justly, of supineness and indifference—should we pass by this opportunity unimproved, we shall deserve the imputation.

We know not how better to close this imperfect notice, than by transferring to our pages the Report of the Committee of Congress, of April 20th, 1838, which will at once, from the most satisfactory documents and largest reach of information, demonstrate the importance of the subject, and its peculiar applicability to the South.

"*Twenty-fifth Congress—Second session. April 20th*, 1838.

MULBERRY AND SUGAR BEET.

"Mr. Randolph, from the committee on agriculture, 'submitted the following report:

"The committee on agriculture, who were instructed 'to inquire whether any, and, if any, what encouragement 'may be given to promote the culture of the mulberry and 'sugar beet, report:

"That, in order to obtain satisfactory information of the 'present state and condition, as well as of the importance 'of the culture of the mulberry and the sugar beet, they 'issued a circular on the subject, shortly after it was com-'mitted to them, to which they have received numerous 'answers, giving much interesting and useful information; 'some of the most important of which the committee

'append to this report. The first question which naturally suggests itself is, whether the subject matter is of 'such national importance as to merit the serious attention 'of Congress; and in order to satisfy themselves on this 'point, the committee ascertained from public documents 'the amount of silk and sugar imported into the United 'States, as follows, viz:

	SILK.	SUGAR.
1836.	25,033,200.	12,514,551.

"This statement at once shows the immense sum 'which is annually paid by the people of this country to 'foreign countries, for those two articles only; and also, 'the very great importance of encouraging their culture 'amongst ourselves. * * * *

"It would introduce to the farmer new and valuable, 'and, as your committee believe, profitable productions; 'which, in rotation with other crops, would have a doubly 'beneficial effect on our agricultural interests. It would 'improve our lands, increase the amount of productive 'industry, and condense, improve, and enrich our popu-'lation. It would be adding other branches to the home, 'the fire-side business of every family, and thus increase 'the pleasure as well as the prosperity of the domestic 'circle. Your committee cannot forbear to notice without approbation, on this occasion, the fact that Mr. 'Lindsay, of Washington City, has frequently conferred 'with them on this subject, imparting his valuable information, enforced by the practical argument of his weaving *a complete suit of domestic silk*, cultivated and manufactured on his own premises. There is in this, as in 'every country, a large class of individuals who, so far 'from adding any thing to the industry and wealth of the 'nation, are unable to support themselves for want of 'suitable employment, such as indigent females and 'children; the aged and infirm, to whom may be added 'the long list of paupers in our poor houses and asylums, 'and of prisoners in our work-houses and state penitentiaries. To this class, the cultivation of silk presents a 'most suitable and advantageous employment.

"Within the last year the cultivation of the mulberry 'has been much more extended than in several preceding 'years, and the people and the Legislatures of several of 'the States have taken up the subject with increased spirit and vigor.

"From all the information which the committee have 'been able to obtain, they are induced to believe that no 'country in the world is better adapted to the production 'of silk or the sugar beet, than most parts of the United 'States, whether we consider the soil, the climate, or the 'habits of the people. The mulberry will grow on high, 'stony, sandy, and comparatively barren land; and 'although the poverty of the soil may decrease the quan-'tity of foliage, it will improve the quality, and add fine-'ness and beauty to the silk; whilst the climate is so 'varied, that no part is too far north to destroy the mul-'berry or prevent the production of a single crop of silk 'worms in a season, yet, in the southern part of the union, 'from eight to ten crops may be raised.

"The morus multicaulis has, for some years, been 'considered the most valuable variety of mulberry; 'though the *brussa*, recently introduced into this country 'from Turkey, is highly spoken of as of a superior 'quality. The large white six-week worm seems to be 'generally admitted to be preferable for the production 'of silk.

"If then there are so many inducements for the pro-'duction of these two important articles, if the market is 'large and yearly increasing, our soil and climate adapted 'to the culture, and the prospect of public good and pri-'vate gain be good; why, it will be asked, may we not 'become a great silk-growing and sugar-making people? 'We can, and the committee believe in no distant time 'will, so become. It only requires that public attention 'should be called and kept to the subject; that our agri-'culturists be satisfied of a fair prospect of success; and 'that the government should lend its aid to insure the 'speedy and permanent success of the measures."

Upon this Report, the Editor of the Journal of the Silk Society makes the following observations. His authority may be depended upon for every particular advanced.

"*The Profits.*—From four hundred to one thousand 'per cent. is now realized on the cultivation and sale of 'trees. So enormous a profit is not of course expected 'to be realized for any length of time, but will decline as 'the trees become more abundant, and the country is 'stalked with silk plantations. But the producing of raw 'silk from those trees must become a permanent busi-

'ness, from which the farmer will be able to realize from 'three to five hundred dollars from each acre of mulberry 'trees. The whole business is as simple as that of rais- 'ing corn or potatoes, and more certain than any crop 'that can be put into the ground, while it furnishes a 'light, easy and profitable employment to children, to the 'aged and infirm, and other dependent portions of the 'household, with which every family is more or less 'burthened. In every way, the silk culture is a matter 'of great individual and national importance, furnishing 'a certain, safe, and it may be added, a patriotic source 'of wealth."

Proceedings of the St. Andrew's Agricultural and Police Society.

At a meeting of the St. Andrew's Agricultural and Police Society, held at their house on James' Island, on Tuesday last, the following resolutions were submitted and unanimously carried; and, on motion, ordered to be published in the Southern Agriculturist, Mercury, and Courier.

1. *Resolved*, That the advancement of Agriculture has ever been of primary importance in all countries and ages, and as a Society formed for this object, we shall individually use our efforts to bring about a more united action and interchange of feeling among the farming interest, especially of our sea-board districts.

2. *Resolved*, That a committee be appointed from this Society, to confer with other organized Societies, upon the propriety of meeting in convention, annually, on the second Monday in November, in Charleston.

3. *Resolved*, That the object of this Convention shall be for the purpose of ascertaining the extent of the crops of every description, in the various sections of the country, and other matters connected with Agriculture and the interest of our profession.

4. *Resolved*, That we are strongly impressed with the belief that the interest of our State will be materially benefited by a more general formation of Agricultural associations in our various districts and parishes, and earnestly recommend the same to the consideration of our fellow-citizens.

RAWLINS RIVERS, *Sec'y & Trea'r.*

Jumes' Island, April 4, 1839.

Tarring Seed Corn.

Mr. Editor,—As the season for planting corn is approaching, permit me to recommend to the perusal of your readers a few remarks I read some years since in an agricultural paper, upon the subject of preparing or tarring seed corn, as a means of protection against crows, hens, black birds, and all others of the feathered tribe. In case the work should not be at hand, I will give the substance of the article, which will be sufficient for any one who is disposed to try it. The process is as follows: "Take a peck of corn and pour it into hot water, (without detriment); after standing a few minutes, draw off the water. The tar having been warmed sufficiently to reduce it to a fluid state, is then applied to the corn in small quantities, stirring at the same time, until the corn is thoroughly daubed with tar. Then apply plaster, ashes, or lime—one of these substances, intermixed with the corn, will prevent cohesion, and give better thrift to the crop. A peck of corn is as large a quantity as will be found convenient to operate upon at a time.

"A quart of tar is sufficient for a bushel of seed. The tar, however, should not be applied sparingly. No injury, to my knowledge, has ever been done to the seed, by any part of this process. I have practised preparing my seed corn in this manner for more than thirty years, and can recommend it as an effectual security against all manner of fowls that have been known to disturb corn-fields." It would seem perhaps the author of the above was rather sanguine in his assertions; but if any statement of mine, as an anonymous writer, will have any bearing, or corroborate those assertions, I can bear testimony to most of the facts therein stated. The tarring process has been practised upon my farm for several years, and as far as it has come under my observation, I believe it to be an effectual security against the depredations of the whole feathered family. But there is another advantage from tarring corn, which is, that plaster adheres more readily, and in a much larger quantity, which is a matter of much importance in this section of country.

CORN.

PART II.

SELECTIONS.

Treatise on the Culture of Silk; by GIDEON B. SMITH.

[FROM THE FARMERS' REGISTER.]

NO. I.

Prefatory Remarks.

The introduction of the culture of silk in the United States has been an object of great interest for some years past, and has been steadily on the increase, until it has now become almost, if not quite, a mania. In 1826, a silk-worm was a curiosity in most of the States of the Union; and but little was known or said about it. At that time the writer of these remarks commenced calling public attention to the subject, and for seven years kept a laboratory expressly for the purpose of obtaining and diffusing information. He had access to all the books then extant on the subject, but they afforded little practical information. Every thing was new to him, and every thing consequently was to be learned from experiment. Happily, the simplicity of the whole routine was such, that careful observation and diligence enabled him to acquire the information he sought without material difficulty. From time to time he has published the result of his experience, on the subject generally, and on particular branches; but as the public feeling has now become more generally enlisted in its favor, the demand for information has increased. The writer is almost daily applied to for his opinions and the result of his experience. He has therefore determined to publish the following treatise.

The subject conveniently divides itself into three parts, viz: The *culture of the mulberry, rearing the silk-worm*, and *reeling, twisting, and preparation of raw silk*. And these three divisions can conveniently be discussed in three numbers of the Farmers' Register. The following pages complete the first part, *the culture of the mulberry*, and it is hoped with sufficient clearness to enable any one to understand the subject distinctly. On the whole subject we shall endeavor to avoid disputations, entering into no critical discussions or controversies on disputed points; but giving our own opinions freely. If we describe one practice and say nothing of another, it is because we know the one to be the right one, and therefore say nothing of the

other; for why should we take up our own and the reader's time in describing that which we know to be useless? With these introductory remarks we submit the first number to the public.

The Mulberry, Multicaulis Culture, etc.

The first thing to be done in the commencement of the culture of silk, is, of course, to provide a full supply of mulberry leaves. The leaves must be abundant, that no stinting of the worms may occur from any cause, at a moment when the whole crop depends upon a full and ample supply of food, which is during the last ten days of their feeding. The mulberry orchard must be convenient to the laboratory, that the expense of attendants for gathering leaves may be as small as possible. There are many accidents that may cause the loss of leaves; during rainy weather it is necessary to gather a supply for a few days ahead, that they may be dried before feeding them to the worms;* these may become spoiled, and thus lost. Therefore we should generally make provision for double the quantity of leaves that we expect to consume; for if we lose none, the cost of this extra provision will be trifling, compared to that of a whole crop of worms, from a deficiency. This is the only mode by which we can effect an *insurance* against such loss.

The kind of mulberry to be employed, is the next object of attention. When I published my "Treatise on the Culture of Silk" in 1830, I had very little experience with the new Chinese variety, the morus multicaulis. It had at that time been but three or four years in the country, was not known at all except to very few individuals, and had of course not been propagated to any extent. It is true, I had the tree in my possession, and knew its value from a brief experiment in 1828 and 1829; but my supply of leaves from it was necessarily very limited, and though I was satisfied of its superiority as food for silk worms, I was not prepared by sufficient practice and observation of its character, to say that it was capable of supplying the place of the white mulberry. I was not sure that it was sufficiently hardy; nor, even if every way preferable to the white, that a supply could be obtained sufficient for this extensive country. I therefore said nothing about it in that treatise, but gave the white mulberry the preference. After the publication of my treatise, however, in 1830, I satisfied myself of the superiority of the multicaulis over every other variety in every point. I found that it could be propagated more rapidly than any other tree, by cuttings and layers: that it furnished a supply of leaves in one-fourth the time required by the white mulberry, and therefore could be made to make returns for capital invested in it so

* I have seen with much surprise a statement in the newspapers that a gentleman had made experiments in feeding silk-worms with wet leaves, and that the result was very favorable, the cocoons made by worms thus fed containing eight hundred yards of fibre, &c. If the statement be not a hoax, and one calculated and intended to do injury, by causing the destruction of whole crops of silk-worms, it must have been founded upon a very insufficient scale to test its merits. I have seen the evil not only of feeding with wet leaves, but even with leaves too succulent. I would therefore caution silk-growers against such statements; and advise that if they wish to try the experiment of feeding with wet leaves, to do so with a single hurdle, and not risk the loss of the whole crop; for be it known that the *tripes*, the disease usually produced by wet leaves, will generally spread over and destroy all the worms in the largest establishment in a very few hours from its first appearance.

much sooner; that a pound of its leaves contained as much nutritive matter as a pound and a quarter of the white mulberry; that the expense and trouble of gathering the leaves was not one-tenth as great as those attending the white; that the worms consume the whole leaf, thus leaving the hurdles less encumbered with the refuse; that the silk made from it was of a very superior quality, in strength and lustre; and finally that the worms in all cases gave it the preference over all other kinds. In my experiments I had the advantage of using fifteen different kinds of mulberry, and have often placed leaves from all of them together upon the hurdles; and the silk-worms invariably seized upon and consumed the morus multicaulis first. Up to the present time I have found no reason to change my opinion of the valuable qualities of this tree in any of the above particulars; on the contrary, every year has confirmed it.

One point of comparison between the morus multicaulis and other varieties I have reserved for separate discussion; not from any doubt remaining in my mind, but from its importance, viz., its *hardiness*, or capacity for resisting the effects of our severe winters. I have now had ten years' experience, and have had the tree exposed to all the severities of the last ten winters, (near Baltimore,) and have never yet lost a tree, nor the limb of a tree of the morus multicaulis, from winter killing. Fortunately, the situations where I first planted my trees were high and dry, and the soil composed of sandy loam. The trees throve remarkably well there, grew early in the season, ripened their wood early in autumn, and withstood the inclemencies of the winter, without a bud perishing. But some of my friends to whom I had given trees, and who planted them in rich low-ground, lost them entirely, or had the tops killed to the ground; and this fact led me to the conclusion, that high, dry, sandy, or loamy soils, were the proper situations for them; and all my future experience has confirmed me in it. All who formerly lost their trees in winter, and have removed them to high situations, have experienced the benefit of the change. The conclusion is, that the morus multicaulis is a *high-land tree*, and when cultivated on high grounds it is perfectly hardy, and capable of withstanding our winters, as much so as any of our native trees. During the winter of 1831–2, my old tree, (the first one that ever came to the United States, and which I yet possess,) was removed to the premises of a friend for safe keeping, (as I was removing to a farm in the country, and not knowing how long I might remain,) and was exposed to all the severities of that most inclement winter. I felt sure that it must have been killed, if not by the winter generally, certainly by that most terrible visitation of frost on the 17th and 18th of March, 1832. But to my surprise and great pleasure it did not lose a bud on that occasion. What is very singular, there was a white mulberry tree standing within fifty feet of it, six or seven years old, that was killed entirely by the winter. Both were equally exposed. I do not intend to infer from this, that the morus multicaulis was more hardy than the white; nor can I account for the death of the latter; the fact however was before my eyes. The trunk of the white mulberry, which was about three inches diameter, was split to the heart from the ground to the limbs. This old multicaulis tree was again removed to its present site in my garden, in the autumn of 1835, and of course now receives considerable protection from the house on the north, and high fences on the other sides. It makes generally young wood from six to eight feet high every year, and the leaves on the

young wood are generally twelve to fourteen inches long, and eleven to thirteen wide. Besides this old tree I have always had others in various situations. Those I had on the farm in 1831, '32, were planted on a hill, perfectly exposed to the north-west blast. The farm is at an elevation of three to four hundred feet above tide. They withstood the effects of the winter perfectly. From all these considerations and facts, I think I am authorized in pronouncing the multicaulis perfectly hardy, when cultivated on high ground—its proper situation. But it is said that the multicaulis is not generally adopted in France and Italy in the silk establishments; and therefore there must be some fault in it. Some say it does not live long—soon decays—the silk made from it is weak and of a flimsy quality. All of which I know, from my own experience and the experience of all who have given it a trial, to be incorrect. That it is not generally adopted in France and Italy is easily accounted for. The demand for trees has also been so great that it was found more profitable to sell them than to keep them to feed silk-worms with: as they could get more money for one young tree than a dozen would produce in silk. They have always their ancient prejudices to contend with, and their ancient customs to combat in France and Italy. There the mulberry trees are owned by land-holders, and the leaves are sold to the raisers of silk-worms by weight. These land-holders have their old white mulberry trees on their estates, and they of course will be compelled to get rid of them before they adopt the multicaulis. These facts render it quite probable that the multicaulis is not generally adopted there; it would be a wonder if it were; for it is not often that we find any people, French, Italian or American, willing to manufacture an article, worth, when made, only a penny, from materials that he can sell for a shilling. And it is the same in the United States. How many societies have been incorporated for the culture of silk, and how many individuals have commenced plantations of trees for the same purpose? And yet where is the silk they have produced? We, it is true, occasionally hear of this, and that person having produced his hundred bushels of cocoons; and of this and that fine specimen of silk; but generally these silk societies and individuals have found they could raise and *sell* trees to more profit than they could realize from feeding silk-worms, and they have generally adopted that course. This will do no injury to the public, for soon the whole country will be supplied with the trees, and then both societies and individuals will fall back to their original object, the culture of silk.

Description of the Multicaulis.

The morus multicaulis is a dwarf tree, or more properly a large shrub, with *many stalks*, as its specific name implies, growing like the hazel, lilac, &c. It is continually sending up young shoots from the crown of the root, and when these become numerous, and the tree six or eight years old, some of the oldest stalks die out; but whether from natural decay or being perished by their vigorous young brethren, I am unable to say. My old tree has been as high as fifteen feet, six or seven feet of which was young wood; but as I generally cut off most of the young wood for propagation, it has never exceeded that height. The leaves, when full grown on the vigorous wood, are twelve to fifteen inches in length, and ten to thirteen inches wide. The rapidity of their growth causes the ribs to grow faster than the

web of the leaf, and hence the large leaves are always *concave*, so that they cannot be spread out flat without tearing them from the edges to the mid-rib. The leaves are so heavy that they always hang, pendulous, and folded somewhat like a towel hung upon a nail. The surface of the leaf has a somewhat glossy appearance on the outer surface, but is a little rough to the touch. The fruit of the multicaulis is very black when ripe, and when crushed yields an intense purple juice, the stain of which is exceedingly difficult to wash out. The fruit is about the size and form of the white mulberry, but generally contains very little good seed—probably my old tree never produced more than twenty at one season,

It is a remarkable fact that all the species and varieties of mulberry tree are exempt from the depredations of all insects except the silk worm. During ten years that I have been a close and daily observer of the morus multicaulis particularly, I never saw an insect of any kind upon it. The common caterpillar seems to be omnivorous—with the exception of the mulberry only—it never attacks that. The elm a few years ago was considered exempt; but it also is now annually stripped of its foliage by insects; and the *linden* also suffers more or less, but the mulberry remains untouched. Even the grasshoppers of the present year, 1838, more destructive than they were ever before known to be, pass by the mulberry, seemingly in acknowledgment of the great law of nature which devotes it as food for the silk-worm exclusively.* On the other hand there is *no other* vegetable that I ever was able to make the silk-worm eat as food. I have starved them, it is true, till they would eat lettuce; and ultimately till they would nibble at oak leaves; but they ate them and all other substitutes, as human beings, in a state of starvation, eat old shoe leather, not as their proper food, but in the hope of sustaining nature a few moments longer. The *Osage orange*, *Maclura*, is an exception. They eat that freely; but it is so like a mulberry in all its characters, that it required considerable ingenuity in the naturalists to call it by another name.

Having given my preference for the multicaulis over all other kinds, and my reasons for it, it will not be expected of me to say any thing of other kinds; for, if the reader puts confidence in what is here written, he will adopt the multicaulis without inquiring about other kinds; and if he do not thus confide in my statements, any thing I could say about other kinds would be of no avail.

The mode of cultivating the multicaulis, is the next subject for consideration. The simplest and most common plan is as follows. Prepare the ground in the spring as for corn. Run furrows four or five feet apart, as preparatory to planting corn. Then take the limbs and young wood that grew last year, cut off close to the tree, and lay them lengthwise in the furrow; the but-end of one limb a short distance, a foot or so, from the top-end of the last laid down; cover the whole limb with a hoe, about one or two inches deep; generally every bud on each limb will grow, and make a tree three to five feet high by

* The fact stated in the text is without doubt very *generally* true, but not *universally*. Within a few days, we have seen several young multicaulis trees, partly stripped of their leaves by broods of caterpillars, which had spread their webs over the part of their plant of which the leaves were already devoured, and whose depredations were in full progress, when they were discovered and killed. *Ed. Far. Reg.*

autumn. The ground should be kept free from weeds and grass, by cultivation, as in corn. About the last of July, it is best to take a sharp spade and separate the young trees, by driving it down midway between them; but this is not essential; they can be separated when taken up the spring following. The next spring they should be taken up and planted in regular form in the orchard, where they are permanently to remain. The best method is to plant them six or eight feet apart in the row, and the rows ten to fifteen feet apart—the rows running north and south, or north-west and south-east. By this mode of cultivation it will be perceived that eight or ten times as many multicaluis trees may be raised on an acre of ground as of *corn-hills*, and that, as the crop is ready for the market, (when they are raised to sell) as early as a crop of corn, there is no reason for the extravagant prices demanded for them. They would be a very profitable crop at five cents a tree.

There are other modes of cultivation which it may be well to describe here. Where cuttings are scarce, and the loss of any of them is of much consideration, a hot bed should be made in the usual way, and the cuttings started in it as follows. Cut all the limbs and young wood into short pieces, with *one bud* on each; lay them flat on the surface of the hot bed, in lines lengthwise, the ends of the cuttings a quarter of an inch apart, and the lines of cuttings two inches apart, with the bud uppermost. Then sift rich garden mould over them, half an inch deep, and put the glass frames on the beds. Every night and morning water them with a watering-pot, merely enough to keep the earth moist. They should be planted in the hot bed one month before the usual disappearance of frost. In and around Baltimore, about the first of April is the time, as frost usually disappears altogether, about the first to the tenth of May. By the time the frost disappears the young plants will be about the size of cabbage plants, and may be taken out of the bed and planted in the orchard where they are permanently to grow. During the time they are in hot beds, care should be taken in warm days to give them air, by raising the glass frames; and if severe frosts occur, to cover the glasses with straw or matting; and when set out in the field they should be well watered for a few days, in the evening. The practice of propagating as above from single buds was first adopted by me, and followed for many years to very *great* advantage; and I am not sure but that it is still the best, as it often occurs that a cold backward spring rots a great portion of the cuttings planted in cold ground as first recommended above. Besides, in the hot bed single bud system, the trees get a month the start and make larger and finer trees. But in very extensive plantations it is "*too troublesome*." A convenient hot bed may be formed by those who are not provided with frames, &c., and are not acquainted with forcing gardens, as follows. Dig a pit two feet deep, four feet wide, and ten to twenty feet long, or as long as you please, if you have manure enough. Fill it with fresh horse dung six inches to a foot above the top. When you perceive it getting hot and settling down, cover it with six inches of rich garden mould, and rake it level and smooth. Let it remain for two or three days, till the heat begins to decline, and then put in the cuttings as above. At night, when cold, lay some light brush over the bed, and spread straw or mats over them, and water them as in the regular hot bed. This method will generally be found to answer all the purposes of a perfect hot bed.

Another method is by layers. Instead of cutting off the limbs and tops, bend the whole tree down to the ground, and cover it, limbs and all, two or three inches deep, with good mould—it would be well to turn up the ends of the limbs, so that the points are just above ground. All the buds on the whole tree that are under ground, will generally grow and each one make a tree by the autumn, when they are to be taken up and separated. The objection to this plan is, that the young trees are apt to be too crowded, and consequently do not grow as large as when the limbs and young wood are cut off, as in the first mode; and I do not find that it is any more certain, or possesses any one advantage over that mode. All other modes of propagation, grafting, &c., are perfectly useless, and therefore nothing need be said about them.

It seems, however proper to remark, in explauation of the omission to give the mode of raising the multicaulis from seed, that this tree produces seed very scantily. Probably an acre of trees of full growth would not produce an ounce of good seed. It is generally the case with all plants that are readily propagated by other means, that they do not produce much, if any seed. But though the multicaulis were to produce seed as abundantly as the white or any other variety, its propagation by cuttings would still be the most eligible mode. The mulberry seed lies a long time in the ground before it vegetates, generally five to eight weeks, and in the mean time the weeds get the start, and smother the young plants as fast as they appear, unless the most untiring vigilance and care be observed in keeping the beds clean. Even then, in spite of care and industry, many—a great proportion—of the little plants will be destroyed in the process of weeding. Even after you have raised the plants above the influence of weeds, they are tardy of growth, and do not produce leaves of full size till they have been repropagated by cuttings, layers, &c., for three or four years. All idea of raising them from seed will be abandoned by every one as soon as they become acquainted with the facility with which they are propagated by cuttings, the scantiness of seed produced by them, and the difficulty of raising them from seed.

I cannot omit the present opportunity of again cautioning the people of this country against the impositions that have been for several years practised, and are yet continued, of *selling morus multicaulis seed.* No such seed ever has or probably ever will be for sale here or elsewhere; and those who pretend to sell it are imposing upon the public a worthless article. The tree does not bear seed enough to pay for the trouble of saving it, even if it sold for its weight in gold. That the seed will produce the genuine multicaulis, I have no doubt, but it will require some years of successive propagation by cuttings to develope its peculiar characters, large leaves, &c. But this question is a matter of little moment, as no person will resort to seed when they can obtain cuttings.

The soil, situation, &c., best adapted to the morus multicaulis, have already been mentioned in a previous part of this paper. The soil should be such as will yield a fair crop of corn; if made richer, the trees will grow larger, but the advantage will not compensate the extra expense. It should be sandy loam, if possible; but gravelly or stony soil answers well: heavy clay soils do not do so well. The situation *must be high land*—that is, it must not be low bottom land. Hill-sides are best; the tops of hills next; level lands are good, provided they

are eight or ten feet above the streams of water, and not subject to water standing on them after heavy rains; but if they are surrounded by hills they will not do, being more subject to early and late frosts than if not thus surrounded by hills. It must be borne in mind that we are discussing the subject of soils and situations best adapted for the permanent occupation of the multicaulis. Where the trees are raised to sell, or to be removed in autumn, then rich alluvial or loamy bottom land is best. The trees will grow larger there; and as there is to be no risk of winter-killing, there is no other objection. In cold seasons, however, and especially in cold late springs, bottom lands are too cold for them, and consequently the trees will be small. In all cases when they are grown on bottom lands, they should be taken up in the month of November, and *buried* root and branch on some high dry situation, covering them about one foot deep. This will preserve them effectually till spring, when they should be planted out, as above directed, in a proper soil and situation. Cuttings are preserved in the same way: cut them off close to the tree in November, dig a pit two feet deep in a high situation, put them into it, mingling earth among them, and finally cover them up a foot deep at least; filling the pit entirely, and arching it as in burying potatoes, &c. Those who fear the loss of the cuttings if left remaining on the trees, can certainly save them in this way; but if trees are in proper situations there is no danger of the cuttings being killed; unless indeed from late planting in the spring, or some other cause, the wood of the cuttings has not been properly ripened. In that case, all the unripe wood will of course be killed by winter if left on the tree, and it will be proper to take the cuttings off and bury them as above.

Much has been said about making *hedges* of the morus multicaulis. As a barrier against cattle or other stock it will not do. Cattle are very fond of it, and will eat the leaves and even branches as large as the finger of the young wood. It may be used as an ornamental hedge, however, and planted in hedge form in fields, to great advantage. The distance between the rows or hedges in the latter case may be from twelve to twenty feet; the latter will admit the passage of a cart for conveying leaves to the laboratory.

In conclusion, I believe I have said every thing that need be said on the subject of the mulberry, its culture, &c. In the next number we shall discuss the rearing of silk-worms, the laboratory, &c.

Cursory Remarks upon East Florida in 1838; *by Major* Henry Whiting, *U. S. Army.*

[FROM SILLIMAN'S JOURNAL.]

Public attention has most naturally been turned towards Florida for the last two or three years. That peninsula has been the scene of a contest of remarkable character, awakening a curiosity respecting its topography, resources, &c., which has found but scanty means of gratification. Although the first portion of the United States to be permanently occupied, (St. Augustine having been founded in 1564,) and early signalized by political revolutions, military events, and romantic enterprises, yet its history, both statistical and natural, has been but imperfectly understood by us. The Spaniards no doubt had

a tolerably accurate knowledge of the interior, which was formerly somewhat extensively occupied by them. Their settlements, however, were much broken up during the insurrectionary movements which immediately preceded the transfer of jurisdiction to the United States, and the majority of them, when that transfer took place, were abandoned, under the influence of strong national prejudices, which led to a distrust or dislike of a new and dissimilar government. Much local information was thus withdrawn. St. Augustine in the east, and Pensacola in the west, with some few subsidiary plantations, were all the settlements that came into our possession. The rest was nearly an unoccupied waste. Even a knowledge of the St. John's, the grand artery of the country, had nearly passed away; so much so, that at the commencement of the present campaign (1837–8) the form, extent, and depth of its upper waters were unascertained.

The war which has lately been carried on with the Florida Indians has opened the country generally to observation, and its character will hereafter be better, if not well understood. Our troops have traversed it in almost every direction; nearly all parts have been explored, excepting the interior of the lower parts of the peninsula south of the Okachobee Lake. From the 26th degree of latitude northward, the geography may be laid down with general accuracy. Indeed, United States' maps of this character are already in the hands of some of our officers, which will no doubt soon be lithographed.

The river St. John's was early entered into both by the French and the Spaniards, the rise and fall of whose establishments there form an interesting and sanguinary portion of history. At the present time (1838) there is scarcely a dwelling occupied on either of its banks fifty miles above its mouth, though many evidences of former occupancy, such as falling buildings, or fields bearing the marks of having been cultivated, are seen some hundred miles higher up. Many of these farms or plantations were abandoned by the Spaniards at the change of jurisdiction; others were the works of Americans at a later date. But all had shared a common fate at the opening of the present contest. The Indians burnt all the buildings and plundered and massacred all the inhabitants that were not defended by a garrison, and desolation is now seen, where, a few months since, were sugar fields, cotton fields, orange groves, and many other proofs of a thriving population.

This river (St. John's) is in most respects of a thriving character. It is unlike most if not all of the rivers in North America, having little current at any point of its course, and passing through a country, from its very source, so level in its surface, as scarcely to warrant the expectation of any stream at all. At low stages of the water there is no visible current even in the upper parts of the river, though at high stages it is visible, having perhaps a movement of one mile an hour. Below Lake George, which is more than two hundred miles from its mouth, the tides have a slight effect and vary the current accordingly, modified, however, by strong winds. Still the waters have not any where a stagnant appearance, and if unpalatable, they are so from causes independent of their want of proper agitation. They are uniformly of a dark color, like that of tolerably strong coffee, the bottom scarcely being discoverable even in the shoal parts. The origin of this tint will be various; decomposition of vegetable matter can contribute but little to affect a body of water so large, particularly when a considerable portion of the banks are either savannas or pine bluffs;

neither likely to have much agency in this way. Lake Monroe may furnish a chalybeate tincture, as its shores abound in chalybeate earths. The lakes above may bear the same character. The waters do not lose their color when suffered to stand in a vessel and to make deposite of such particles as may be afloat in them.

The St. John's is a large river for some hundred and fifty miles from its mouth, being from three miles to a mile wide nearly as high as Lake George. Thus far it has the appearance of an arm of the sea, and in fact feels the influence of the tides. From Lake George upwards it is comparatively narrow, excepting where it dilates into lakes, and very winding, running perhaps several miles in one mile of a straight line. Lake George has been long known, and Lake Monroe, about sixty miles above, was occupied by our troops the first campaign of the present war. Thence upwards the river was to be explored at the commencement of the present campaign. It was soon penetrated through Lake Jesup to Lake Harvey, and afterwards to Lake Poinsett, about a hundred miles above Lake Monroe.

Charleston and Savannah steamboats ascended with army supplies without difficulty, at the high stage of the waters, to Lake Harvey, which supplies were sent thence by row-barges to Lake Poinsett, where the river ceased to be subservient to the purposes of transportation. This high stage was in the fall; as the winter months set in, the larger boats could ascend no higher than Lake Monroe, until spring rains again raised the level of the waters.

The banks of the river as high as Pilatka, or more than one hundred miles from its mouth, are generally elevated several feet above the water. From that point to Lake George they are comparatively low, and are probably mostly submerged at high stages of the water. Between Lake George and Lake Monroe the banks are generally high enough to be dry, excepting where savannas prevail. Wherever the pine barrens strike upon the river, the banks are eight or ten feet high, with a substratum of shelly soil or rock. To Lake Monroe they are for the most part clothed with a growth of wood—chiefly live oak, pines, and cypress, as high as Lake George; the palmetto or cabbage tree, being largely intermixed thence upwards.

The gray moss clothes nearly all the trees upon the river, excepting the pine and palmetto. These are respected or avoided by this general associate of the trees, from some want of affinity which may not be understood. This moss is a most singular production, having a rank luxuriance little according with its kindred species. It hangs from every bough many yards in length, and wears the appearance at a distance of dingy muslin thrown with a careless grace over every part of the tree, waving to and fro in the breeze and forming a most striking embellishment of the scene; and the effect is not diminished by the presence of the tall and symmetrical palmetto, which rises up some forty or fifty feet perpendicular, like a perfectly wrought column, surmounted by a capital of most appropriate beauty. The moss never throws its foldings over this handsome tree; as we have before remarked, the pine is equally avoided by it. This capricious forbearance with respect to these two kinds of trees, introduces a beautiful variety into the river scene. Where the banks are high and sandy, the pine prevails; where they are low and wet, the cypress—"the melancholy cypress." The live oak and other miscellaneous trees, prefer the banks of an intermediate character, as also the palmetto. The cypress seems to exclude all associations; no other trees mingle with it, or if they happen to start up along side they are soon over-

shadowed above by the spreading tops, or crowded out by the cone-like bases below, which last leave only room for the thousand 'knees' or sharp excrescences, from one to several feet high, which shoot up like so many dwarf pinnacles.

Ascending the river, which is constantly winding and shifting the point of view, wherever the cypress permits, there the moss is seen in all its sweeping luxuriance. As these trees spring from nearly a water level, and grow to about an equal height, their flat and spreading tops present nearly a horizontal line, where the green appears in all its depth and freshness. Thence, however, to within a few yards of the ground, the folds of moss, like ample curtains, conceal nearly all from view, leaving the trunks exposed below, which are covered with a whitish bark. This aspect may prevail for half a mile, when the banks may rise and become covered with the live oak, whose angular and scraggy arms give a new appearance to the moss, which is still as luxuriant as on the cypress. But the outline above is far different here. Palmettos perhaps raise their grateful heads above the oaks in striking contrast with their associates; or perhaps the pine may show in the barren beyond; while over all is the clear azure of the sky, always in Florida

"So purely dark, and darkly pure."

These changeful beauties, combined with the occasional sight of a wild orange-grove, with its golden fruit bespangling the foliage, altogether render a trip up the St. John's delightful in a high degree.

The ash, poplar, swamp oak, &c., which line the banks of a part of the upper St. John's, drop their leaves during winter months, unlike all the other trees to which we have been alluding. But these trees would seem to be deciduous, to exhibit more plainly the verdant parasite which attaches itself to most of their branches. In passing up the river for the first time, the uninstructed gazer is surprised and puzzled to see on all these trees a tuft of evergreen, while the branches in general are stripped of their foliage, until informed that it is the mistletoe, which, having attached itself thus to a foreign stock, continues to smile in verdure, while its supporter is standing in gloomy nakedness. The mistletoe bough is always of a rounded form, varying in size from a few inches to thirty or more in diameter. The seeds, which are said to be winged, have a gluten surrounding them, which enables them to attach themselves where they alight, and at once to draw forth nourishment as if fixed to a parent stem. The *nullius filius* of the forest, it is adopted by the first tree to which it flies for protection and sustenance.*

Sulphur springs are very abundant on the upper parts of the St. John's. They bubble up like *jets d'eau*. In passing up to Lake

* This is a mistake: The seeds of the mistletoe are not *winged*, or capable of being conveyed to other trees by the winds. But their diffusion and propagation are as well secured by another curious and admirable provision of nature. The seeds are enclosed in berries, filled principally with a glutinous pulp, and which form food for certain birds. In eating the mistletoe berries, the glutinous matter and the seeds contained, which adhere to the outside of the bird's beak, are wiped off, on any branch on which it afterwards perches. By this operation, the seeds are stuck to any other, and often to distant trees, where they sprout and take root; and the manner of the deposite is the cause why the mistletoe more often than otherwise is rooted in the lower side of the limb, as a bird most conveniently wipes its beak on the lower side of the branch on which it stands.
Ed. Far. Reg.

Monroe, there is one a few miles below, which attracted, among others, the notice of Bartram. An inlet on the right bank is seen, nearly of the width of the river, which at once attracts the eye, by the contrast between the color of its waters and that of the river. Two pieces of lumber, placed at right angles with each other, one of mahogany and the other of yellow pine, could not be more dissimilar. And the liquid line of separation is almost as distinct as it would be in the supposed case. The St. John's has here, as elsewhere, its coffee-like hue, while the waters of the sulphureous inlet are as transparent as the air, the fishes swimming in them being nearly as discernible as the birds flying over their surface. The alligators, diving, as usual, at the approach of a boat, when they happen to take refuge in this limpid inlet, continue to struggle downwards in apprehension, as if they felt that it did not afford the usual refuge.

Ascending this inlet several hundred yards, it is found to terminate in a well head or basin, of some thirty feet diameter, with high banks, in the centre of which there is a permanent turmoil of the waters, as if a fountain below threw up its contents with much force. Rowing the boat upon this agitated spot, it was with difficulty kept there in its position, against the efforts of the ebullition to throw it off. A strong odor of sulphur fills the air around, and the taste of the waters is equally sulphureous.

Above Lake Monroe, wide-spread savannas become prevalent. They form the main body of the section of country through which the St. John's flows, and are so slightly inclined, that its course is extremely tortuous, the bends having more the shape of a horse shoe, than of a segment of a circle. The immediate banks in these savannas are somewhat elevated above the level of the waters, as the growth of a wild cane indicates, but the greater portion of them bear a tall, rank grass, which shows that it is often inundated, and that the soil is constantly saturated with moisture. Lakes George, Monroe, Jesup, Harvey and Poinsett, are fine sheets of clear water, of no great depths, but generally free from aquatic vegetation. They all abound in fish and wild fowl.

Fort Taylor, (a mere stockade like all the other forts in Florida of recent origin,) which was built a few miles above Lake Poinsett, three hundred and fifty miles or more from the mouth of the St. John's, is the highest point to which the army boats ascended. Above that post, the river narrowed and shoaled, so as to become useless for all purposes of transportation. The army there took its course southwardly, reaching the head waters of the St. John's, some seventy or eighty miles S. S. E. The source of this river has been in question up to this time, having been supposed to be connected either with the everglades or the sea. Both of these suppositions are now at an end. The strip of land between the coast and the St. John's, as far south as Cape Florida, has been sufficiently explored to determine the fact, that it has no channel connexion with the sea in that quarter; and it has been equally ascertained, by various army movements, that it is also without a like connexion with the everglades or the lakes, to the west and south-west. In rainy seasons, when the water overspreads nearly the whole country, the St. John's may be connected in a diffused way with both sides. Fall and spring rains, when they come, elevate the river sometimes many feet, as would appear by marks on the banks. The last two or three seasons, the difference has been from two to three feet. The low stages are, at midsummer and midwinter, and when the periodical rains happen to fall, or are only moderate,

the subsidence must be very great. It has been remarked by the Indians, that all the waters occasionally drain out. This may be an exaggeration; but such a result, nearly to the extent expressed by it, might easily be supposed to follow a year of drought, the St. John's being evidently dependent for its supply on the tides below and the rains above.

The interior of Florida, south of Lake Monroe, was scarcely known until the present war. It was assigned by conjecture and common report, to the "everglades," an indefinite and comprehensive term, which means neither land nor water, but a mixture of both. These supposed everglades have been much circumscribed by late examinations. They have lost at least one or two degrees of latitude. Okachobee Lake, a body of water of some forty miles in diameter, and of a decided lake character, and the lands east and west of it, can no longer be thus classed. The lake south of this, reported to be still larger than Okachobee, called by the Indians, Pai-hai-okee, or grassy lake, may prove, on examination, the true everglades. But it is now about as probable, that even this, their last hold, will be found to partake of the general character of that part of the peninsula, and that land and water will then have its usual divisions, so far as a sandy country of unusual flatness permits. The name which the Indians have given the lake, shows that it must be generally so shallow as to allow grass to predominate; rendering it probable that it has a less decided lake character than the lakes above.

It was until lately taken for granted, that the interior of Florida was without any eminent parts, but the army movements have opened to observation, some sandy ridges or hills of considerable elevation. These are not far from that central region where the waters diverge to different sides of the peninsula. The course of the various streams which take their rise within these central parts, marks out the character of the slope, running north-west, south-west, south-easterly and northwardly. The Onithlacoochee, Pease Creek, Kissimmer, St. John's, and the waters emptying into the Indian River lagoons, all illustrate this central elevation, and general inclination towards the coast.

One of the striking features of the coast of Florida, is the lagoons, as they are termed, or long and narrow bodies of water, separated from the sea by a strip of sand, generally not more than a mile or two wide. They are connected with the sea here and there by inlets, which are made and kept open by the out-rushing or in-rushing tides, as they happen to prevail. The outward current is that which chiefly prevails, from the most natural causes. Accumulations from rains must give a great preponderance to the inner waters, which however, may, in the course of a dry season, drain out to a level with the outer waters, when the drift of a storm blocks up, at least for a time, the usual passage, and so it remains until the balance of force is turned by new rains.

The alternate operation of counter causes, explains the fact well known by those who frequent this coast, that these inlets are at one time very accessible, and at others, nearly or quite closed up. These lagoons extend from above St. Augustine to Jupiter inlet, a stretch of three or more hundred miles, with but a few miles interruption by land. Their common depth is several feet, though they all are traversed by shoals or bars, which reduce their navigable facility to about three feet. These shoals, however, could easily be made passable for useful purposes. It has been proposed to connect the river

St. John's by a canal with the Matanzas river, separated by about ten or fifteen miles; the Matanzas with the Halifax, twice that distance, perhaps, apart. Between the waters of which the Musquito inlet is the embouchure, and those of the Indian River, there is only a narrow neck of about half a mile. Such a project would open an interior navigation from Charleston to Jupiter inlet; and below Cape Florida it is well known that a practicable and sheltered channel runs around the peninsula, within the "keys."

The mangrove tree is a conspicuous embellishment of the Indian River lagoon. Being of an aquatic character, these trees, by a happy provision of nature, are radicated to suit their thrifty habits, not unlike the long-legged species of birds which are fitted for the water; they stand with their trunks lifted several feet in the air, sending out roots from that elevated point, like so many bow-legs, to seize the earth or water below, with a base often as wide spread as the branching head above. Then, again, as if these roots could not drink moisture enough to satisfy their cravings, each branch sends down many a slender tube perpendicularly to the water, like so many syphons to draw it up. The foliage is of the brightest green. Altogether, a mangrove thicket is a most attractive object to the eye. These thickets sometimes shoot out a spur into the lagoon, resembling just above the water a fisherman's weir-net, but surmounted by a most redundant foliage, and almost closing up the channel.

The bars at the mouths of the lagoons are an obstruction to the commercial facilities of Florida. The entrance to St. Augustine harbor is perhaps the best on the coast, and, with proper attention to the tides and winds, is safely practicable for vessels of light draft. The drift of the ocean, which in this quarter is strongly charged with alluvion, heaps up the sands along the coast, constantly changing their position, with, probably, a gradual augmentation. The inlets would share the common fate, and be closed up, if it were not for the outsetting currents, arising either from the tides, or the accumulation of waters within. These causes, with partial exceptions, keep open a channel, but cannot preserve it in one place. The bar off St. Augustine has widely shifted, being now nearly one-half the points of the compass to the north of its position, within the memory of living pilots. Those of the more southern inlets are less practicable, excepting that of the Musquito. The channels are known only to those who are habitually upon them. A fearful looking surf is always coursing over them, when a wind is blowing with freshness, which renders them formidable to strangers, while those who are accustomed to them, pass through it with little real hazard. The evil, however, is a great one, and apparently irremediable.

The rivers of Florida, though of no great length, are, generally, of a most convenient depth. The banks are bold and firm. Those which empty into the lower part of the St. John's, are fitted for any craft that comes into the main river, or have no impediments in the way, excepting what arise from fallen trees. There is no current to change their character, which belongs to a level country.

The botany of Florida was early examined by the Bartrams, and Audubon was some time among its birds, which are rich in number and variety. Many anecdotes are told of the latter, showing the patience with which he kept his station in swamps and marshes, in order to ascertain the habits of the feathered creatures there, in spite of musquitoes, reptiles, and other intolerable annoyances. Dr. Leitner, who was killed in a skirmish with the Indians, this campaign, (1838,)

is said to have been a skilful botanist, and an ardent votary of science. Accompanying a portion of the active force, he would have had uncommon opportunities for observing the plants of the southern interior, which probably came little within the scope of the Bartrams, whose investigations were mostly, if not altogether, on the river St. John's and the coast. He had already made considerable advances towards the object he had in view, with a most flattering prospect before him, when he fell in the honorable performance of his duty.

The orange tree has been extensively cultivated in Florida since its first occupation. The seville or sour, and bitter-sweet orange, are apparently indigenous to the country, as many groves of both are now found flourishing, where no labor of man would seem to have placed them. The China, or sweet orange, is probably an exotic. These were found, not only around nearly every house in the country, but occupying a part of nearly every garden in the towns. They were an important article of commerce. The oranges of Florida excelled all others in the northern markets. More than two millions were annually shipped from St. Augustine alone. One tree there is said to have produced six thousand in one year. But this staple of the country was cut down in one night, in 1835. A severe frost occurred in the time of Bartram, (1765,) which killed the lemon, citron, and other tender trees, but only partially injured the orange. There were trees standing in 1835, more than a century old.

This calamitous event, besides destroying one of the principal sources of revenue of St. Augustine, divested the place of its chief ornament. Each lot became, as it were, denuded of its drapery, which had been thrown over every building, high and low, giving them all a borrowed beauty. A person who was absent at the time of the frost, in revisiting the place, could scarcely recognize the most familiar scenes, their aspect was so entirely changed. It takes about seven years to renew the orange tree to a bearing state.

Cotton and sugar grow well in Florida, but silk will probably be the staple of the country after a few years. The mulberry tree, multicaulis, &c., grow there with a vigor and luxuriance that have no parallel in the United States. More than eight months in the year afford a fulness of food for the worms.

The soil of Florida wears a forbidding aspect. Sandy barrens form the principal part of the surface. Hammock land, that which bears the oak, maple, and other "hard woods," and which are the richer and more productive parts, constitutes but a small proportion. But the sands of Florida are but in part siliceous. They are probably for the most part comminuted shells or lime-stone. Hence they have a degree of fertility which often surprises those who undertake their cultivation. The surface, however, is so level, that it is liable to the extremes of drought and inundation. In riding from the St. John's to St. Augustine, a distance of eighteen miles, the road will be found, after a moderate rain, one-half or two-thirds under water, which is carried off more by evaporation than by subsidence; and this is a sample of the country in general.

The yellow pine, *pinus palustris*, is a conspicuous tree in Florida, both on account of its lofty symmetry, and its adaptation to many useful purposes. It affords tar and turpentine in inexhaustible abundance, and is an equally inexhaustible material for lumber. Whether it be the only growth the soil can yield, or merely a pre-occupant, as in many other parts of the country, giving place, when removed, to a species of hard wood, is, perhaps, not yet ascertained. It is probable,

however, that when this tree shall be cut down, and fires, scorching the whole face of the country, shall cease, the growth of the forest lands will assume a better aspect, and that the soil will improve in a corresponding degree. It is the fallen tree of this pine, which furnishes the Indian with his "light-wood;" a source of comfort and convenience that strongly attaches him to the soil which produces it. The fuel formed from these prostrate trunks, is at hand on every spot, and is easily ignited, making, in all weathers, a bright and durable fire. The nights of Florida are almost invariably cool, and the facility with which the Florida Indian can temper their chilliness, by means of this ready and combustible wood, is a conspicuous item in the privileges of his life, the great design of which is to attain desirable objects with the least effort. Our troops, in the late campaigns, have been equally indebted to it for many a comfortable encampment, as, even in the midst of heavy rains, a brilliant fire might be kindled, which, with due care, no rains could extinguish.

The hammocks at present are generally secure from encroachment from the barrens, being mostly covered with a dense growth of trees, which preserves them from change. But, whenever the time arrives in which they shall be cleared up, and become exposed to external influences, it is not unlikely that the surrounding barrens, clothed in a soil of such levity as to be acted upon by winds and rains, will gradually overspread these comparatively small spots on the surface of the country, and reduce nearly the whole to one general character.

The waters of Florida abound in fish. Even the upper parts of the St. John's afford a large supply of very tolerable quality. But the lagoons of the coast have not only an abundance of the finest fish, but also of the finest oysters. The oysters of Indian river are surpassed by none, in size or quality, on the Atlantic coast. Want could never approach the inhabitants of that region.

The present war, during which the Indians have been too much harassed to attend to seed-time or harvest, has turned attention to the class of indigenous esculent vegetables, which, by their spontaneous abundance, have, through the extremities of this period, afforded them ample means of subsistence. The most conspicuous among these are the red and white coonta roots. The first is the China-brier, or *Smilax china*, a vine of great thriftiness, spreading sometimes over the space of more than a hundred feet, with roots like a large, long and irregular potato. The white coonta is the *Zamia integrifolia*, which has a full tap-root, rounded with the symmetry of a boy's top. The leaves are large and fern-like, forming, when the seed-bud is in its fulness, a handsome plant.

Both of these roots are grated or bruised by the Indians, and the starch separated, by frequent changes of water, from the fibrous or woody parts, as also, in the white coonta, from a poisonous quality which is combined with it in its natural state. The flour of the latter has the look and feel of arrow-root, and is equally nutritious and well suited to weak stomachs. The flour of the China-brier is of a reddish hue, and more easily obtained than the white coonta.

These two important articles of food are found in abundance, the one or the other, in most parts of southern Florida; the China-brier in nearly all the hammocks, and the Zamia in most of the barrens along the coast lagoons. Thousands could subsist upon them, with only the labor necessary to gather the roots and prepare the flour. Previous to the war, one or two persons were established near Cape Florida, who manufactured the white coonta in large quantities for

shipment. Medical men often prefer it, for hospital purposes, to the arrow root.

The palmetto is often called the cabbage-tree, from its containing an edible substance within its top, which somewhat resembles a cabbage—more in look, however, than in taste, which is not unlike that of a raw chesnut. Where the fan-shaped leaves of this beautiful tree put out at the top, is found unfolded a pith, forming about one-third of the diameter of the trunk, and about twelve or fifteen inches long, which is of an eatable quality, particularly when boiled, or preserved as a pickle. It is true, a tree some half century old might be sacrificed to the attainment of a single meal: but these trees are abundant, and no doubt have often afforded one to a roving Indian, who sat down hungry and unprovided beneath their shade.

But the necessities of the war now going on, have opened a new resource to the Indians, or which, at least, does not appear to have been used by them in more abundant times. This is found in the root of the *saw-palmetto*, a singular species of most common vegetation in Florida, which overspreads nearly every pine-barren, covering it like a vast reticulated carpet. In passing over these barrens, the palmetto leaf is seen shooting up from the ground in great luxuriance, forming, as is found on close inspection, the termination of a recumbent cabbage-tree, several feet long, and probably half buried beneath the surface, or deciduous vegetation. Lying constantly on the ground, it never acquires the bony hardness of the exterior coat of the upright cabbage-tree, but is covered with a fibrous hairiness, which gives it almost the softness of silken plush, prevailing through every fold, to the very heart, excepting within a few inches of the end, where is found a nutritious pith, smaller than, but not unlike, that of the cabbage-tree. This is bruised into meal, and made subservient to the purposes of food. These roots spread, as we have before remarked, over nearly every barren: and, since a portion of them is convertible into food, there can be no limit to the spontaneous subsistence of those who frequent them. The leaves or foldings of this root are thin and pliable, several inches long, and three or four wide, and are worked into many articles of ornament and use.

There is also found in Florida a wild potato, of tolerable quality, and much wild fruit. Game of all kinds is abundant, and wild fowls are numerous on every stream and lake. The Indians, in Spanish times, were accustomed to herd cattle largely, and at the commencement of the present war, they are said to have thousands.

From this enumeration of the articles of food which present themselves spontaneously to the wants of the Indian, it will be seen that they are little dependent on care, foresight, or labor, for subsistence.

The mineralogy of Florida is scanty. The rocks found in situ are all calcareous, though siliceous boulders, of a small size, are occasionally seen, and nodules of hornstone are here and there mingled with the limestone, which elicit sparks, and are sometimes used by the Indians for flints.

The geology of Florida presents many interesting features; but it has as yet been examined with little attention, warranting few definite conclusions. The coast, as far as Cape Florida, is alluvial, a seeming mass of comminuted shells, resting on a rocky formation, composed also of shells, more or less broken and abraded. From Cape Florida, the formation is mostly coralline, the Keys being of that character. The shells around the Keys are found in nearly a perfect state. Take

up a handful at random, and it will exhibit little else than fragments of coral and univalves, generally of a small size, and diminishing almost to a point. As high as Indian River Inlet, the beach is still formed of shells, though less distinct and perfect in their form, mingled with some sand; while about Cape Carnaverel the sand predominates until shelly fragments almost disappear to the naked eye. Still, it seems probable that the whole beach is of a calcareous character.

The coquina rock (as the Spaniards called it) is a formation found in the spits of sandy land which separate the lagoons near the coast from the sea. It has been quarried in Anastasia island, for more than a century, affording a material for structures of all kinds in St. Augustine, worked with uncommon facility, and of a durable character. A large fort, of Spanish construction, at that place, is of coquina. In latitudes where there is little or no frost, it is, perhaps, the best material that can be used in fortifications; being firm enough to sustain the form of any work, and receiving a shot like a plastic mass, exhibiting no fracture, and throwing off no splinters.

The quarries near St. Augustine are generally about ten feet deep. The profile of the strata, as presented to the eye there, exhibits, first, a superficial covering of vegetable mould; next, a stratum of shelly fragments, quite small, and without any distinctness of character, with no cohesion. This stratum varies much in thickness, according to the undulations of the surface, being generally from two to three feet. The next in the descending series is a stratum of several inches thickness, composed of similar shelly fragments, but united in a mass by some cement. Then intervenes a stratum of sand, an inch or two in thickness. Immediately below this sand is a stratum of shelly rock, between two and three feet in thickness. This stratum is formed of shells in various states, the upper several inches being much like the stratum above, that is, of small and indistinct fragments, when, for several inches more, it assumes a new character, many of the shells being perfect in their outlines, and only much abraded, and most of them of a size to give some clue to their species. The interstices in this portion of the mass are large in proportion to the size of the shells, and the cement which holds them together is hardly visible. Bivalves, cockles, of the cardium species, predominate, while here and there is found a conch of large size, as also oyster fragments. Some of these conchs are several inches in length, though much worn. This course and comparatively unbroken deposite has a substratum, with which it is equally closely joined, like that superimposed. A thin stratum of sand next succeeds; and then a third stratum of shelly rock, about two feet and a half thick, the component parts of which are in a state rather more comminuted than any lying above. This stratum is likewise of a more solid and uniform character than its associates, and gives the largest blocks for building purposes. A sandy stratum is found below this, and, so far as an examination has penetrated, a coquina formation descends no lower.

All these strata are firm concretions, their component parts being obviously conglutinated by a calcareous substance, which holds them well together. This foreign substance, or cement, is quite visible in the finer formations, though little seen in the coarser. Taking up a piece of the latter, the cause of cohesion is apparently so slight, that one is surprised that the mass does not crumble at a touch.

It is a common conjecture that the coquina is of recent formation, and that causes are still operating to produce it. This conjecture has some apparent and plausible grounds. It wants, however, the sup-

port of deeper investigation into the character and force of these causes. Fragments have been constantly heaping up on the coast, portions of which have been long lying in a quiescent state, without exhibiting any evidences of a change, or a tendency to one, particularly of a change from a loose to a concrete state. The upper stratum of the quarries we have been describing, would be likely to assume the character of the strata below, if such a change were in progress. But the century, during which it has been subject to observation, has witnessed no alteration. The fragments all lie in a separated state, without showing any signs of cohesion.

It has been surmised that the animal matter of the shells might have furnished the element of cohesion. But this surmise would seem to be at once disproved by the condition in which the shells were found, when the concretion took place. It is evident that they must have been subjected to a long and severe process of attrition and contusion, previous to that event; such a process as must have widely separated all animal matter from its former covering. Besides, there is no reason for supposing that this animal matter, even if it had existed in connexion with the shells at the time the rocky formation occurred, could have produced the effect assigned to it.

A more probable conjecture is, that the shelves themselves, by some chemical exertions or agency, which operated in connection with their partial dissolution, furnished the bond of union among the fragments, though not in a way that leaves the same agency still in operation. These different strata are evidently so many distinct deposites, probably at different and distant periods; broken shells thrown up or spread over a certain space, and no doubt converted at equallp different and distant periods into solid masses, either by sudden or gradually operating causes, ceasing with their effect. Such a hypothesis is in harmony with our notions of other formations of rock.

There are appearances of shelly formations on the St. John's, particularly the upper parts of it, but the shells are of a different character. Scarcely a bivalve is seen on or near that river, either loose or in rocky connexion. The prevailing shell there, is the helix, while univalves are as rare in the formations on the coast. The soil at Volusia and Fort Mellon consists of half shells, which are generally perfect in their shape, the defects evidently arising rather from decay than abrasion or contusion.

The limestone does not show itself on the coast, nor on the St. John's until you reach Lake Monroe, where it is intermixed sparingly with shells. On Black Creek, west of the St. John's, a porous, rotten limestone appears, and this is said to be the character of the rock formations throughout the western part of the peninsula. Hence the many "surth-holes," deep and (some of them) unfathomable orifices in the earth, which appear in these regions, and the disappearance of streams for many miles beneath the surface of the earth, while others come forth in all their fullness at once.

The climate of Florida, during the six or seven months from October is truly delicious. The frosts are generally few and slight, leaving vegetation its verdure, and flowers their bloom, throughout the year. Such frosts as kill the tender trees or shrubs are of rare occurrence. Rains occasionally prevail during the winter months, but more commonly during the latter part of summer. Our troops have now been operating during three winters. Two of them have been decidedly dry. The first was rainy.

By a loose diary, kept in Florida, since the last October (1837) and continued through two hundred and fourteen days, more than one hundred and fifty of them were decidedly clear and pleasant days; about forty somewhat cloudy or foggy; and about twenty rainy, but of these nearly one-half were single rainy or showery days, leaving only about ten which were of a rainstorm character. Musquitoes have bitten, and frogs have peeped throughout the whole time, though not always in the same numbers or with the same spirit.

It is perhaps a common impression, that there are some formidable animals and many venomous reptiles in Florida. The alligator is a clumsy, timid animal, never, it is believed, the assailant, unless it mistake a swimming boy for its common prey. Scorpions, snakes, lizards, &c. are common upon the barrens, and our soldiers, in sleeping on the ground, often came in contact with all of them, and were often stung by the former, generally with unpleasant, but never with fatal consequences.

Invalids have long looked to Florida as a refuge from the northern winter, and during the disturbances of the last few years, St. Augustine has necessarily been the only place of resort. But when peace shall be established, and the St. John's re-occupied, that river will present many places of great attraction to the infirm and pulmonic.

Culture of Cotton.

[FROM THE SOUTH-CAROLINIAN.]

Locust Grove, Abbeville District.

Mr. Editor,—I have searched in yeur agricultural columns, but in vain, for some article on the culture of cotton. Are our planters not aware of the paramount importance of this production of our country? Or is it taken for granted that every person knows how to raise it? So every person knows how to fatten pigs. But there are improvements and these improvements should be disseminated for the benefit of all. Cotton is the chief source of the wealth of the Southern States, and contributes largely to the comfort of millions of the human race. We cannot improve in the culture of it too much. I would not recommend that we should raise more than we do; but, with care and attention, the same quantity may be raised on much less ground, by which our lands would not be so soon exhausted. Land is the only real wealth of our country, and it is surely unpatriotic in the people to destroy or waste it. It is impoverishing their prosperity.

What is there worthy in a man's accumulating a considerable fortune, if, in doing this, he has laid waste more land than would support his posterity for generations to come?

Cotton seed should be procured from the best ground, where the cotton has been well worked, and the bolls fully matured, gathering, for this purpose, the middle bolls: that is separating the first opening and the last, from the second. The first bolls become grown when the stalk is young and not prepared to give to the seed that perfection which it does in a maturer growth. The last opening is generally immature, from the decay of the stalk, cold winds, early frosts, &c. That which is intended for seed should be picked out when dry, and never allowed to heat or ferment, which would occasion a decomposition of its parenchyma, and a predisposition to rot while growing.

This partial fermentation of the seed will not prevent its germination; but its nourishing principle being injured, the young plant will not have that constitutional vigor so essential to perfection in growth, but will be susceptible of all the disasters incident to the cotton crop. It is equally as important that we should extend a care to the preservation of our seed, as to the preparation of the soil. A defective seed cannot bring a perfect plant. The more pains we take with regard to the preservation of our seed, the less will be their degeneracy. The land should be thrown up in beds as early as possible with a turning plough, which will hasten the decomposition of its vegetable matter. Low moist land should be drawn up with the hoe, but no other. Some people contend for a rigid system of management, as to the time and manner of planting and working a crop; but, as there is no regular time or way of managing, which will suit the precarious seasons of our climate, all plans must be modified according to circumstances.

There is a prevailing opinion among planters, that the sooner cotton is planted, so that it is not killed by frosts, the better. This is an error of considerable magnitude. If experience did not prove to the contrary, we should need no better evidence, it seems to me, than to know that the cotton plant is a native of a warmer climate than this. In Florida, the West-Indies, and Mexico, where there are no chilling winds or frosts to stunt its growth, cotton grows to greater perfection than in Carolina and Georgia. Cotton ought not to be planted until there is evidence of a permanent change from cold to warm, which in time every man's experience will dictate. Cotton will then come up and grow off sooner than that which has been injured by frosts or cold winds. Before planting, the seed should be rubbed in ashes, moistened with water. This will cut the lint, so that the seed can be dropped more regularly. And the ashes which stick to the seed are highly beneficial, as they impart their alkaline qualities to the young plant, and accelerate and give vigor to its growth. Some planters rub their seed before planting in lime; but I prefer ashes, because its inherent principle (alkali,) is not only a stimulus, but a nourishment also: whereas, lime is only a stimulant, and might, in some instances, engender want. Ashes have a two-fold advantage. They give a healthiness to the young plant, and an impetus to its growth, which render it less susceptible of the influence of circumstances.

After the cotton is up, a scraper should be run round, if the land is bedded. This will not throw the soil down, and leave the cotton standing on a narrow ridge, which would impede the progress of the hoes, in chopping out. The cotton should be left in bunches of three or four stalks at a place—the distance, suitable to the strength of the ground, not putting it to an entire stand until the second time. A great deal is often lost in the cotton crop by its being too close in the drill. The stalks should stand at such distances as at all times to admit the sun to shine through upon the ground. It is the general warmth of the sun, with a free circulation of air, that causes the cotton to bear, mature, and open. After chopping out, the cotton should be run round with a turning plough, the bar next the cotton. This throws the soil to the middle, covers the young grass, and admits the warmth of the sun to the roots of the cotton; but it should not stand long in this condition, before it is run round again, with one or two furrows, throwing the soil back to the cotton. It is then in good condition for the second hoeing. In hoeing the second time, the cotton should be

put to a perfect stand of one stalk. Those which are to be removed, should not be chopped off with the hoe, but should be pulled up with the hand. This is the speediest way, and the most practicable, as there is no danger of bruising those which remain. It has been shewn by experiment, which is better than all the theories that can be adduced, that one stalk at a place, giving it the proper distance, will bear more and better cotton than two stalks or more. And this is not at variance with the theory of the times; for two stalks cannot draw more matter from the earth than the earth will yield to one; but on the contrary will exhaust the earth of those ingredients material to the formation of the cotton, which is the ultimate purpose of the cotton planters. And no planter will deny that there is more efficacy in a perfect plant than one that has been bruised, mutilated or wounded, in any way. Its transpiration is free and unrestrained; no waste of its juices, their renovating principle being carried out to their ultimate perfection. We may attribute, and very correctly too, the barrenness of some stalks to the wounds and bruises which have been inflicted, when young, either upon the stalk, or about its roots. And might we not, with equal propriety, view this as one of the causes which hasten the degeneracy in our seed. Could we but view, scientifically, the progress of the cotton plant, from its germination to maturity, and see the analogy of its constituent parts, we would see that a perfect growth is necessary to the perfection of seed. Then surely it would be prudent in every planter to use these necessary pains; they require no more time, and would evidently increase the quantity upon the ground; and the purity of the seed would be a great desideratum in the next crop.

The third working should be given with as much or more care than the second. The roots are then spreading in every direction, and the stalk is in a good way of bearing. There is a universal practice among some planters, in the third, and in the last working, to plough deep and bed up high. This is an error which is attended with inconceivable injury. Every experienced planter knows that there is the bulbous or large root, that strikes perpendicular and deep into the ground, and the fibrous or small roots that run horizontally immediately under the surface of the ground. The office of the latter is to seek for nourishment which is essential to the support of the bolls. The main root, which strikes into the ground, collects moisture, and supports the stalk. Now, what must be the result of cutting those fibrous roots with the plough in dry weather, or at any time, for we have no warranty of rain? The consequence must be a dropping of the bloom, and the barrenness of the stalk, until rain come again, that these roots may take a fresh start to grow. Or even if the ploughing should not be of sufficient depth to cut the roots, the soil is drawn off with the hoes, in piling it round the stalk—the earth dries to its usual depth, and these roots are exposed to the burning rays of the sun. I have seen the effect of this so strong as to fire the lower leaves of the stalk.

Another attenuative consequence of the high bedding system, is, that the cotton derives no benefit from light showers. The water inclines to the middle, and runs off or evaporates, and does the cotton no good. Nothing short of a thorough wetting rain will do any good.

Perhaps some one would inquire, am I totally opposed to the bedding system? I would answer, there is a medium in all things. Every virtue carried to excess, becomes a vice. A broad flat bed would serve the requisite purpose. My plan is to run round with a

broad scraper. This runs immediately under the surface, destroys the small grass, and neither tears down or throws the bed up higher; and with one or two furrows, with a turning plough, to split the middle, then, if necessary, draw from the middle furrows, with the hoe, a little of the soil, depositing it on each side. This answers the double purpose of shading and accumulating moisture about the roots of the cotton, and absorbing more water during light showers. Whereas, the high beds lose more moisture even in dry weather, because evaporation goes on from the surface of the ground. The surface being increased, of course evaporation is increased.

It may be thought that these little cares and pains are too trivial and unimportant to compensate for the additional trouble. But if there is any thing in three years experience and observation, I am prepared to say that they will amply repay for all this additional trouble. "Without pains, there are no gains, as poor Richard says."

Keeping Accounts.

[FROM THE MECHANIC AND FARMER.]

The correct keeping of accounts is the only sure method by which a man can tell how his affairs are getting along, and whether he is gaining property or losing it. Nor is this the only advantage; many men would, by knowing their expenses of living—the loss or profit on each branch of their business and the indications, favorable or otherwise, of a particular course, be enabled to make timely calculations, and thus prevent unlooked for calamities and misfortunes. It is not enough that a man keep his business accounts—his debt and credit, although strange as it may appear very many neglect even this: but he should go deeper than this, and keep a correct account of his expenses—family and personal. If a farmer, he should keep an account with with each field, and charge it with all its expenses, and give credit for all its returns—with his flock of sheep—his cattle, poultry and bees, in the same way. Let him then charge his family with the grain, vegetables, wood, meat, apparel and other articles, together with the publications, books, travelling expenses, taxes, &c. tIf a mechanic, the house and shop should each be charged and credited their expenses and income, and then once in each year balance these accounts—learn and ponder upon the facts this settlement discloses, and profit by its lessons.

There are a great many persons who spend much time in calculating upon the result of a political election, or the success of a party measure, or the appointment of a man to office, or the business and prospects, and even the domestic affairs of others, but neglect this essential duty of examining their own affairs, that they may be enabled to make the necessary calculations for themselves, and those whom Providence has placed under their protection.

But, it is objected to this course, that it can do no good—that they live as cheap as possible, and knowing the exact amount, would not help the matter. But this is the mere assumption of the question, without proof, nor can it be true in either of its parts, as we will show. Suppose the man to be a mechanic, he buys his provisions in small quantities, and lives as 'near the wind,' or to use his own words 'as cheap as possible.' We will suppose that he really intends to do

this. But he keeps no account of his expenses. He finds himself rather short at the end of the year, and cannot tell the reason. Now, suppose that the next year he buys a cow, and a pig, and buys his wood and provisions in larger quantities. At the end of the year he finds himself in a better condition generally, kept no account. Now to what shall he refer to as the cause of his prosperity? To keeping a cow and pig? But perhaps these have proved of little value. It may have been his business, and the difference in the manner of buying his provisions, or it may be his business was bad, and the cow and pig saved him. You see at once the uncertainty in the case, and most of the troubles in life arises from acting on just such uncertainties. The fact is, a man should know how he gets along. And no man can do this without keeping accounts. A man may be growing poorer every year, when by the slight change of keeping a good cow, and a pig or two, he might be gaining property each year.

But the business is troublesome and takes time. Indeed! and what is time mostly used for but the design of promoting prosperity? The objection however assumes too much. It is not troublesome to keep such an account when the necessity for it is seen, and the business is fairly commenced. So far from this that the wife or the children can keep the book, and become familiar with the pen, and learn to keep a neat book, and are thus prepared for doing business, when under the necessity of transacting it for themselves. Again, there is in every well regulated family great pleasure to be derived from the annual settlement of the family expense book—each one feels interested, and an opportunity is thus afforded for impressing upon the mind of each the importance, if not the necessity, of strict economy; and a little wholesome personal resolve is likely to follow. Besides all this, the whole number of articles purchased does not make so large an amount of writing as is generally supposed by those unacquainted with it. Half a page of ordinary day book would be sufficient for most families for a month.

We have urged this subject perhaps too strongly, but we see so many vague uncertain, arms-length calculations, (although not worthy the name) among men, and so few that are definite, concise and certain, that we have felt the importance of their beginning somewhere, and know of no better place than in keeping a family account. We now leave the subject for the consideration of those for whom it was intended.

The Wife at Home.

[From the Newark (N. J.) Daily Advertiser.]

It has been one of my most serious apprehensions, that in the multitude of our societies and public combinations, men and women might chance to forget that they have any thing to do individually. We have societies to take care of our health, and societies to take care of our kitchens. Alms giving, so far as done at all, is done chiefly by wholesale. Perhaps we may see the day when we shall dine together, like the Spartans, and when all family cookery and education shall be done upon the large scale.

These thoughts were brought to my mind with greater force than common, a few days since, upon my making a visit to the house of Mrs. Nelson, the wife of a reputable farmer, a few miles from our

village. If I were to attempt a portrait of this excellent lady, I should fill a volume; I can only give a sketchy outline. Mrs. Nelson is, in the American as well as the English sense, a fine woman. Temperance, early rising, industry, and above all serene cheerfulness of soul, have left on her cheek at forty, those roses which fashion and excitement often blast before fifteen. But what I took my pen to notice, was that truly feminine and christian trait of my good friend; she is a *keeper at home*. Though I have been a church-going man many years, I do not remember to have heard any one of our clergy enlarge upon this scripture phrase; and yet the older I grow the more meaning there seems to be in it. The best women in the world are those who stay at home, such is the opinion of the best judges, to-wit, their husbands. The worst women are those who have no home, or who love all other places better; such is the verdict of those who meet them abroad. A wife in the house is as indispensable as a steersman at the wheel. Who can count up the cases where poor fellows have been ruined by their wives.

This is a hard saying, but if it were softened, it would be less true. Surely it is no disrespect to the better sex to point at these rare exceptions, which like the dim tarnish on the face of the moon, make the other tracks look all the brighter. After you shall have exaggerated to the utmost the number and the faults of the gadding, gossipping, and idle women, we still have a million of American house-wives, brightening a million homes and hearts. Mrs. Nelson is one of them. Her husband is not the meekest man in the country, nor by nature the most hospitable, but she makes up for all, like the credit side of an account. In the exercise of the passive virtues, she finds her greatest happiness. She holds ia to be one of the very first duties of life to render her home delightful, first to her husband, next to her children, and then to all who may enter her hospitable doors. Early in life, she observed that several of her husband's intimate acquaintances were becoming irregular in their habits, she and Nelson talked it over at length. He being a rough man, declared it to be his intention to break of all intimacy with Lang and Shepherd, on the spot. "O no! husband," said she, "that would be cruel, remember the proverb, 'A soft word breaketh the bone.' Let me alone to bring them to their bearings; at any rate, give me a month for an experiment." "You! Mary," he exclaimed in astonishment, "you amaze me; surely you will not follow them to the bar-room, as Jemima Murphy does her good man." "No," said his wife laughing, "but we women have some secrets left still. Wait but a month."

The month rolled round. Nelson had hard work to refrain from falling upon the two men violently, but he waited to see the issue, and even kept out of their way that the incantation might be uninterrupted. At the close of less than the three weeks Lang and Shepherd were two of the most quiet, orderly, and domestic men in the neighborhood. "Why, Mary," said Nelson, "what in the world have you done to them?"—"I? husband! I have not exchanged words with them for weeks." Then you have had some witchcraft at work." "Not I," she replied; the story is soon related, I had observed for a long time that their homes were growing dismal, and I often told Mrs. Lang what I feared concerning her husband. Indeed I had heard you tell of his repeating over his glass that abominable saying, 'the devil's at home.' After my conversation with you, I set to work—not on the husbands, but their wives. Simple creatures! they scarcely

knew what I meant. They wished indeed that the men would spend more time at home, and even wept about their late hours and rum drinking. But they were not prepared for my telling them that they must redouble the attractions of their own fireside and table—make the cheer better—the fire brighter—the children cleaner—the welcome heartier; call in a pleasant neighbor to tea—have a little singing in the evening, and even invite to a comfortable supper two or three of the husband's tavern cronies. The thing took admirably. The wives triumphed, and I hope you are satisfied."

Though it is likely Nelson did not just then suspect it, this was the very course which had proved successful in saving himself from ruinous habits. And most earnestly is it to be wished that all our towns and villages were filled with such wives as honor and love the family institution! Every one has made the observation that there are many more women who are religious, than men; but the final cause of this has not so often been remarked. Divine Providence by this discriminating favor to the one sex, pours influence into the social fountain. As are the mothers of a nation, so will be the sons, and, in a measure, the husbands. But to exercise full influence; the wife must be a keeper at home. She will find enough to employ her longest days, in the endless circle of household cares. While she will welcome the evening visiter, and often enlarge her frugal board for the bevy of friends, or even join in the social party or the cheerful sleigh ride, these things will be the exceptions, not the rule. So living, she will give happiness to an ever increasing circle. "Her children arise up and call her blessed; her husband also, and he praiseth her." C. Q.

Remarks on Gardening.

[FROM THE SILK CULTURIST.]

The mode of laying out the ground is matter of taste, and may be left to the gardener himself: the form being a thing of trifling importance in the production of vegetables. The essential point is to keep the ground well worked, and free from weeds.

Previous, however, to entering on the work of the garden, the gardener should lay down rules for his future government. In this book he should first lay out a plan of his garden, allotting a place for all the different vegetables he intends to cultivate. As he proceeds in the business of planting his grounds, if he were to keep an account of every thing he does relative to his garden, he would soon obtain some knowledge of the art. This the writer has done for the last nine yoars.

One great article to be attended to, is, to have a supply of good old manure and other composts ready to incorporate with the earth; also a portion of ashes, soot, tobacco, dust and lime, for the purpose of sowing over seed-beds in dry-weather: that will tend, in a great measure, to destroy insects which sometimes cut off young plants as fast as they come up.

If the graund cannot all be manured as it should be, it is of primary importance that those vegetables be provided for which most need manure. Good rich manure is indispensably necessary for the production of brocoli, cauliflower, cabbage, lettuce, spinage, onions, radishes and salads, in general.

In the event of a scanty supply of manure, those kinds of vegetables which are raised in hills or drills, may be provided for by disposing of the manure immediately under the seeds or plants.

The next important matter is to have the ground in suitable condition to receive the seed. I would wish to be understood, that I am an advocate for early sowing and planting, even to the risk of losing a little seed, provided the ground be fit to receive it. A light sandy soil will be benefited if worked when moist, as such treatment will have a tendency to make it more compact. On the contrary, if a clay soil be worked when too wet, it kneads like dough, and never fails to bind when drought follows, and this not only prevents the seeds from rising, but injures the plants materially in their subsequent growth, by its becoming impervious to the moderate rains, dews, air and influence of the sun, all which are necessary to the promotion of vegetation.

Much depends on the manure used on particular kinds of soils. The great art of improving sandy and clayey soils, is to give the former such dressings of clay, cow dung and other kinds of manure, as will have a tendency to bind them and make them more compact, and consequently more retentive of moisture; and to the latter coats of horse dung, ashes, sand, and such other composts as may tend to separate the particles, and open the pores of the clay so as to cause it to approach as near as possible to a loam.

The nearer the ground approaches to a sandy soil, the less retentive will it be of moisture; the more to a clayer, the longer will it retain it; and the finer the particles of which the clay is composed, the more tenacious will it be of water, and consequently be longer in drying, and harder when dry.

The work of drilling may be performed in various ways; in some cases a plough is used, in others a small hoe, or a dibble drawn along the edge of a board or line: it is of little consequence which way the work is done, if it be well done. While I leave the gardener to make his own choice of tools, I would suggest that he be provided with two or three drilling machines; these every handy man may make for himself; they should be in the form of a garden rake, with five teeth, two inches broad, and tapered so as to enter the ground and leave the drills two inches deep.

Gardeners practice different methods of covering up seeds, some do it with a hoe, others with a rake or harrow; some draw a portion of the earth to the side of the bed, and after sowing the seeds return it regularly over the bed: in some particular case a seive is used, in others a roller. Rolling or treading in seeds is necessary in dry weather, but it should never be done when the ground is wet.

There is nothing that protects young crops of turnips, cabbage, and other small plants, from the depredation of the fly, so well as rolling: for when the surface is rendered completely smooth, those insects are deprived of the harbor they would otherwise have under the clods and small lumps of earth. This method will be found more effectual than soaking the seed in any preparation, or dusting the plants with any composition whatever; but as the roller must only be used previous to or at the time of sowing the seed, and not even then if the ground be wet; it is necessary that the gardener should have a hogshead always at hand in dry weather, containing infusions made of waste tobacco, lime, soot, cow dung, elder, burdock leaves, &c. A portion of these ingredients, or any other preparation that is poisonous to insects, without injuring the plants, thrown into a hogshead kept filled up

with water, if used moderately over beds of young plants in dry weather, would in almost every case, insure a successful crop.

If it be necessary at any time to sow seeds in dry weather, it is recommended to soak the seed in water mixed with sulphur. This practice, with attentive watering, will cause the seed to vegetate speedily.

If it should be requisite to transplant any thing when the ground is dry, the transplanting should always be done as soon as the earth has been freshly turned over, and the roots of the plants should be steeped in mud made of rich compost, before they are set out.

I have, in most cases, recommended seeds to be sown in drills drawn from eight to twelve inches apart, in preference to sowing broadcast, because the weeds can be more easily destroyed by means of a small hoe; and which properly used, greatly promotes the growth of young plants. T. BRIDGEMAN.

Cultivation of Wheat.

The following are extracts from a report of Rev. Henry Coleman, to the Legislature of Pennsylvania, on the cultivation of wheat.

Soil for Wheat.---Rich, heavy loams, containing a considerable mixture of clay, are most suitable to wheat. Wheat has been cultivated with tolerable success on sandy or silicious lands; but on lands of this description it cannot be repeated oftener than once in five or six years, and the land ought to be prepared and enriched by the cultivation of preceding manured crops. Lands strongly calcareous, or abounding in lime, are favorable for wheat, and indeed all other crops. Wherever clover may be made to grow, there wheat may be cultivated to advantage with proper management.

Situation and aspect.—The aspect of lands, whether high and airy, or low and confined, is of considerable moment. Various theories have been suggested in regard to the origin of rust and mildew in wheat. The prevalent opinion with the French naturalists at the present day, is, that they, like smut, consist of small parasytical plants, designed to be nourished upon the wheat plant. Whatever may be the fact, the appearance of these diseases bears as near a relation to certain states of the weather at the time the wheat is maturing its seed as the courses of the tides to the changes of the moon. These diseases usually occur in the damp, hot, steaming, foggy weather of July. In low and confined situations, wheat is much oftener blighted, than in situations which are elevated, and where the air circulates freely.

Ploughing and preparation of the land.—If intended to raise wheat on land, for example, that is now green sward, what should be done? Let the land be turned over with as much care, and the furrow slice be laid as flat as possible; and then thoroughly rolled with a heavy roller, until the field is entirely smooth. The inverted sward must not be disturbed, and in no case be brought again to the surface. As to the depth of ploughing, if a subsoil plough were used, the more deeply the subsoil could be loosened, without burying the upper stratum or mould, so much better would be the crop. But as such an instrument is probably not yet in use among us, it is advisable to plough little deeper than the vegetable mould; and let that be thoroughly reduced by harrowing, to a fine tilth, and the seed be sowed as soon after plougning as can be conveniently done. Experience and observation establish as a geueral rule in farming, to sow as soon as may be after the land has been stirred.

Origin of Bots in Horses, and their Cure.

[FROM THE SPIRIT OF THE TIMES.]

Mr. Porter:—I have observed lately much speculation as to the origin of the bot or grub. I have read Mr. Mitchell's account of his experiment in the cure, and after the animal died, his experiment in killing the worm, after taking it from the stomach of the dead horse.

As it should be our object to do all the good we can to mankind, I feel it my duty to give the world what I think a certain remedy for the bot or grub, without commenting how they find their way into the horse's stomach, or how they are formed. It is enough that such a thing does exist as bots in horses, and that it is important how to get rid of them, when we ascertain our horse is affected by them.

To make the bot or grub let go his hold, give the horse a quart of molasses or dissolved sugar, with a quart of sweet milk—in thirty minutes you will find the horse at ease; then pulverize one eighth of a pound of alum, dissolve it in a quart of warm water, and drench your horse—after which, in two hours or less, give the horse one pound of salts, and you will find the bots in his dung. I have never failed. I think this is, after all the speculations and cures I have seen, the only thing that will to a certainty remove the bots.

The molasses and sweet milk cause the bot to let go and prey upon the sweetening—the alum contracts him, and the salts passes him off.

J. C. WALKER.

Oyster Shell Lime.

[FROM THE FARMER AND GARDENER.]

Dear Sir: Having expressed an opinion unfavorable to the oyster shell lime as a manure, which appeared to not coincide with yours, I will proceed to state my reasons for this (it may be) singular opinion.

In the year 1832, I burnt about two thousand bushels, from which I made a compost, one-half at least of which, was composed of rich earth collected from fence rows, which had remained mellowing and enriching itself for at least twenty years. In the autumn of the same year, I applied the compost broadcast on my wheat ground, and ploughed it in with the wheat. The result was exceedingly favorable, which I then attributed to the effects of the lime. I have since been convinced it was partly the rich earth before mentioned, (as a large proportion of the compost,) and of deep ploughing.

In the early part of the year 1834, I burnt about four thousand bushels, and spread it on a field of twenty-four acres that had been ploughed in the preceding autumn. In the spring it was harrowed with a heavy three horse harrow, and cultivated twice previous to putting it in corn. The corn was carefully cultivated, and in the month of August sown in timothy. There has been no benefit perceived from the application in either the crop of corn or timothy.

In May, 1837, I gave the oyster shell lime a more distinct trial. In part of the field I spread on a clover-lay two hundred bushels barilla ashes per acre; on the other part of the same field—and all the land equally good—was spread one hundred bushels oyster shell lime per acre. The whole was ploughed in early in June, when the clover was in blossom. The field was ploughed three times previous to sowing the wheat. The result was, the wheat on the ground ashed yielded an abundant crop, and that on the ground limed, scarcely paid the expense of cultivation. In several other parts of my farm I have applied the oyster shell lime extensively, and have in no instance experienced any beneficial result.

One of our very intelligent Maryland farmers assured me he always doubted its efficacy, and had paid particular attention to its results for the last fifteen years, and in no case has he discovered any benefit from the application of the oyster shell lime.

In reply to your inquiries of the oats sown by me, and quantity produced per acre, I take much pleasure in informing you that in the year 1837, I sowed ten and a half acres in what is generally called the Poland oats, and the produce was 650½ bushels well cleaned merchantable oats, and a small quantity unmeasured, say fifteen bushels light, that would answer all the purposes for feed to my stock. I am under the impression the yield would have been larger had not they fallen about the time they were maturing.

In 1838 I sowed thirteen acres of the same oats, the produce 715 bushels. The mode of cultivation was, to plough the ground deep in the preceding autumn, and again in the spring, after it had been well harrowed. I am under the impression the above is the general mode of cultivation, but of that I am unable to form a correct opinion, having never sown oats on my farm until the year 1837.

A SUBSCRIBER.

PART III.

MISCELLANEOUS INTELLIGENCE.

On Agricultural Education.—Extract from an article on this subject, in the December No. of the London Farmer's Magazine:

"We a short time since called attention to the measures recently adopted in the United States for establishing a regular plan of Agricultural Education, one most important step towards which object was, the depositing, by the Education Commissioners, a copy of the best two agricultural periodicals as they appear, and also the transactions of the Boards of Agriculture established, and in part supported by the State, in every school, to be read as class books. We are aware that at present we do not in England possess the machinery for adopting such a course, and we mention the circumstance rather to prove the exertions making by our transatlantic friends to promote Agricultural Education than for any other purpose. In offering some remarks upon this subject on a former occasion, we venture to suggest that the use of elementary works upon agriculture, and subjects immediately connected with it—as the principles of breeding stock, mechanics, chemistry, &c.—in the schools in which the sons of farmers are educated, would be productive of much benefit; and we further suggested that it would be a subject worthy of being entertained by the English Agricultural Society, how far prizes should be offered for the production of such elementary works, and for prizes to such school-masters as should extensively introduce the use of them. When we made this suggestion we were perfectly unconscious that such a course had been adopted, and is still pursued in France. Upon looking over the monthly Report of the Proceedings of the "Royal and Central Agricultural Society" in Paris, as given in an agricultural periodical called "Annales de L'Agriculture Francaise," (Annals of French Agriculture,) we find that in the present year three prizes of 1000 francs, or about £40 each, have been awarded to three authors of elementary works upon agriculture, prepared for the use of schools, and also two gold medals, and one silver one, to the authors of three others. And in the list of prizes offered for the year 1839 we find one of 1000 francs for the composition of elementary books on agriculture for the use of children in schools. Why should agriculture be the only pursuit in which no instruction is thought necessary? and which must be learnt by actual practice, thus completely throwing away the advantages which would result from the recorded experience of those who have gone before in the same track. We trust that this most momentous subject, Agricultural Education, will not be lost sight of, as it is not only in the development of the mental faculties, but in the advancement of temporal interests, that it will be found "to produce an hundred-fold."

Receipt to make a Wine in imitation of Madeira Malmsey without Grapes.—Take some pounds of raisins, and of sweet almonds, (according to the quality and quantity of wine you wish to make) beat all together in a mortar, and throw it in a cask of water; add to the mixture portion of American honey and good brandy, and mix it well with a strong stick for the space of fifteen minutes, every day during three weeks—at the end of one month rack it from the lees, pass it to a new cask, and clarify it with eggs.

Well do we know that all the regalia of this world cannot dignify the death of a villain, nor diminish the ignominy with which a slave shall quit existence. Neither can it taint the unblemished honor of s son of freedom, though he should make his departure on the already prepared gibbet, or be dragged to the newly erected scaffold for execution.---*Josiah Quincy, Jr.*

Wherever the Bible is freely circulated, and its devotions carried home to the understandings of men, the aspect of society is altered; the frequency of crime is diminished; men begin to love justice, and to administer it by law; and a virtuous public opinion, that strongest safeguard of right, spreads over a nation the shield of its invisible protection. Wherever it has faithfully been brought to bear upon the human heart, even under most unpromising circumstances, it has, within a single generation, revolutionized the whole structure of society; and thus within a few years, done more for man than all other means have for ages accomplished without it.—*Wayland.*

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In the quiet possession of the blessings transmitted by our fathers, we are, perhaps, in danger of forgetting or undervaluing the sufferings by which they were obtained.—*Miss Sedgwich.*

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Steamboats.—From an essay lately published in the New-York Courier and Enquirer, we copy the following pertinent remarks:—"There are now on the Mississippi and its tributary streams, above one thousand steamers." Steamboats at one period increased so fast that good pilots could not be obtained; and now so numerous have they become, that engineers are not to be found; nor can they be instructed in the science of their profession, or acquire the means of practical information, so essential to safety, as fast as steam-boats are multiplied on the vast expanse of our western waters.

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Gun Lock.—An Italian named Rosaglio, who resides in England, announces a gun lock, constructed upon such new and curious principles that it acts without any exterior combustion, needs no priming, and frees the discharge from all flame or smoke but what is emitted at the mouth of the barrel.

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Certain cure for the Piles, by a Country Physician—his own Experience.—It is this: take a piece of patent lint, or linen cloth, spread upon it some Turner's cerate, (some tallow or any mild ointment would do as well,) in the middle of the plaster—put some calomel, say twenty grains, and every night apply it to the piles, letting it remain all night; the relief will be almost immediate. Continue it till cured, and when the disease appears disposed to return, apply it again. I have recommended it to a number. Calomel to piles, is as certain a cure as tooth-pulling is for tooth-ache, and the only remedy I know of worth using.

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A Fascinating Gentleman.—In Hutton's Autobiography is the following filial account of a father's attractions:

"Though my father was neither young, being forty-two—not handsome, having lost one eye—nor sober, for he spent all he could get in liquor—nor clean, for his trade was oily—uot without shackles, for he had five children, yet women of various descriptions courted his smiles, and were much inclined to pull caps for him."

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Effective Preaching.—In 1104, when Henry I. was in Normandy, a prelate named Serlo preached so eloquently against the fashion of wearing long hair, that the monarch was moved to tears; and taking advantage of the impression he had produced, the enthusiastic prelate whipped a pair of scissors out of his sleeves, and cropped the whole congregation.

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How to save in little matters.—Procure a book and keep an exact account of all your expenditures. At the expiration of three months, review the account and see how much you have expended in four penny and nine penny items which you could have done without as well as not. Then see to it that each ensuing quarter shall be minus just those things. In many cases the aggregate would be found more considerable than you would be aware of, unless you kept such an account.

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Large Armies.—The largest standing army in the world is kept up by the Chinese; it amounts to 12,000,000. Russia has 650,000 men continually under arms, and France 310,000. The army of the United Kingdom is upwards of 90,000.

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To keep Meat Hot.—The best way to keep meat hot, if done before company is ready, is to set the dish over a pan of boiling water; cover the dish with a deep cover so as not to touch the meat, and throw a cloth over all. Thus you may keep meat hot a long time, and it is better than over-roasting and spoiling it.

A man is sometimes more generous when he has but little than when he has much money; probably because, in the first case, he is desirous of concealing his poverty.—*Franklin.*

A Southern editor asks, in talking of poetry and matrimony—"who would indite sonnets to a woman whom he saw every morning in her night cap, and every day at dinner swallowing meat and mustard?"

Liniment for the galled backs of Horses.—White lead moistened with milk. When milk is not to be procured, oil may be substituted. "One or two ounces sufficed for a whole party for more than a month."—*W. H. Keating.*

The following Recipes to cure Diseases in Horses, are taken from the Maine Farmer.

Paste to stop Bleeding.—Take of fresh nettles one handful, bruise them in a mortar; add blue vitriol, in powder, four ounces, wheaten flour, two ounces, wine vinegar, half an ounce; oil of vitriol, half an ounce. Beat them all together into a paste. Let the wound be filled up with this paste, and a proper pledget of tow laid over the mouth, in order to prevent it from falling out, and then bandage it on with a strong roller. This dressing must remain in the wound ten or twelve hours.

Ointment for Scratched Heels.—Take of hog's lard, 1 pound white lead, 4 oz. alum, in fine powder, 2 oz. white vitriol, 1 oz. sugar of lead, half an ounce olive oil, 3 oz. Grind all the powders in a marble mortar with the oil, or on a marble slab; then add the lard, and work the whole together till united. This is a neat composition and very proper to keep in a stable during the winter; it will not only be found useful for greasy and scratched heels, but also for stubs and treads of every description. A small quantity must be rubbed on the part affected every night and morning, in slight cases; but in treads, or wounds upon the heels, it will be best to spread the ointment on pledges of tow, and secure them in bandages.

Ointment for Greasy Heels.—Take of white ointment, 1 pound white vitriol, blue vitriol, and sugar of lead, in powder, each half an ounce. Mix well together. This ointment, when used, must be spread on strong brown paper, and applied over the part that greases, and bandage on with listing. He may, after dressing, be turned into a dry straw-yard, and a few diuretic balls given to him; one may be given every third day. Once dressing is in general sufficient to perform a cure; if not, it may be repeated in a week after.

Astringent Embrocation for Strains in different parts.—Take of camphor, 2 drachms, dissolved in half an ounce of strong rectified spirit of wine, nitre 1 oz. dissolved in half a pint of wine vinegar, spirits of turpentine, 4 oz. white lead, or bole armenic, in powder, half an ounce, aqua fortis, 1 oz. Mix and shake them all together in a bottle for use.

Mixture for Cancer in the Mouth.—Take of wine vinegar, half a pint burnt alum, and common salt, each 1 oz., bole amonic, half an ounce Mix and shake them together in a bottle for use. It will be proper to dress the horse's mouth with this mixture every morning and evening, in the following manner: Take a small cane or a piece of whalebone, half a yard long, and tie a linen rag, or a little tow round one end; then dip it into the mixture, and pass it up his mouth, and gently remove it to all the affected parts: let him champ it well about in his mouth; after which let him fast an hour, then give him food as usual.

Malanders.—It consists of chops or cracks on the inside of the foreleg against the knee, discharging a red sharp humor. To cure this disease, wash the cracks with warm soap suds or old urine; then rub them twice a day with an ointment of hog's lard, mixed with two drachms of sublimate of mercury; or apply a poultice of the roots of marsh mallows flax-seed, softened with linseed oil, tying it on with a roller. Continue that till the seeds fall off, and the sores become clean. Afterwards a mixture of turpentine and quicksilver will be a proper application.

To prevent Horses being teased with Flies.—Take two or three small handfuls of walnut leaves, upon which pour two or three pints of soft and cold water; let it infuse one night, and let it boil for a quarter of an hour; when cold it will be fit for use. No more is required than to moisten a sponge, and before the horse goes out of the stable, let those parts which are most irritable be smeared over with the liquor, viz: between and upon the ears, the flank, &c.